

**City of Marinette**  
Marinette County, Wisconsin

*Specifications & Drawings For*  
Menekaunee Harbor Restoration Project

REL Contract No. 3775-15-01

**June 2015**



**Robert E. Lee & Associates, Inc.**  
Engineering, Surveying and Environmental Services

1250 Centennial Centre Boulevard ♦ Hobart, WI 54155-8995

Phone: 920-662-9641 or 800-986-6338 ♦ Fax: 920-662-9141

[www.releeinc.com](http://www.releeinc.com)

# **INTRODUCTORY INFORMATION**

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9. Have you ever failed to complete a contract? No  
Where \_\_\_\_\_  
When \_\_\_\_\_  
Why \_\_\_\_\_  
Amount of contract \_\_\_\_\_  
Type of work \_\_\_\_\_

10. Name of your bonding company JRyan Bonding  
Address P.O. Box 465, Hudson WI 54016

11. Name of your principal bank Associated Bank, 1720 Monroe St., Madison, WI 53711

12. A complete financial statement shall be attached hereto prepared.  
13. A schedule of all major equipment owned by the contractor and available for the project shall be attached.  
14. A statement of the principal personnel and their experience available for the project shall be attached.  
15. A statement of the contracts in excess of \$10,000 completed in the last three (3) years, where located, type and amount of contract shall be attached.  
16. Have you been qualified by the Wisconsin Highway Department? no  
For what amount? \_\_\_\_\_

All questions shall be answered as completely as possible. Where a question does not apply, you shall so state. Answers must be typewritten or in ink. Any additional information not included in the questionnaire but of importance to determine your qualifications may be presented in letter form attached to the questionnaire and made a part thereof.

I hereby certify that I have prepared and/or examined all answers to this questionnaire, prepared all statements attached hereto, that all information and statements are based on facts known to me, that I have full authority to make such statements in behalf of the contractor to which the questionnaire applies and that such statements are true and correct.

[Signature]  
(Signature)  
[Title]  
(Title)

Subscribed and sworn to before me this 21st day of May 20 15

[Signature]  
(Notary or other officer authorized to administer oath)

My Commission Expires: 1/29/19



Return questionnaire to: ROBERT E. LEE & ASSOCIATES, INC.  
Consulting Engineers  
1250 Centennial Centre Boulevard  
Hobart, WI 54155  
(920) 662-9141 (fax)  
[lrogers@relecinc.com](mailto:lrogers@relecinc.com) (e-mail)

On or before: Friday, May 22, 2015

**Applied Ecological Services, Inc.**  
**As of May 20,2015**  
**CONFIDENTIAL**  
**Financial Statement**

	<u>May '14 - Apr 15</u>
Ordinary Income/Expense	
Income	16,163,976.48
Cost of Goods Sold	<u>9,905,873.65</u>
Gross Profit	6,258,102.83
Expense	
610000 · Payroll Expenses	2,853,556.97
620000 · Administrative Expenses	525,848.40
640000 · Marketing	75,475.18
621700 · Professional Fees	132,609.37
650000 · Other Operating Expense	736,861.01
651000 · Rent	603,607.06
681000 · Interest Expense	142,252.08
682000 · Insurance	321,095.66
683000 · Taxes and Licenses	27,694.47
689000 · Depreciation Expense	<u>385,863.46</u>
Total Expense	<u>5,804,863.66</u>
Net Ordinary Income	453,239.17
Other Income/Expense	
Other Income	61,321.89
Other Expense	
801000 · Est. Provision for Income Tax	5,550.00
803000 · Other Expenses	<u>47,037.07</u>
Total Other Expense	<u>52,587.07</u>
Net Other Income	<u>8,734.82</u>
Net Income	<u><u>461,973.99</u></u>

Applied Ecological Services, Inc. is a privately owned entity that is not audited as financial information is internally prepared.

**Applied Ecological Services, Inc.**  
**As of May 20,2015**  
**CONFIDENTIAL**  
**Balance Sheet**

	<u>Apr 30, 15</u>
<b>ASSETS</b>	
Current Assets	
Checking/Savings	140,728.71
Accounts Receivable	2,302,428.52
Other Current Assets	<u>2,726,651.80</u>
Total Current Assets	5,169,809.03
Fixed Assets	
130000 · Fixed Assets	<u>936,631.91</u>
Total Fixed Assets	936,631.91
Other Assets	
140000 · Long-Term Receivables	251,948.00
150000 · Investment in Partnerships	306,216.90
161000 · Security Deposit	<u>23,553.64</u>
Total Other Assets	<u>581,718.54</u>
<b>TOTAL ASSETS</b>	<u><u>6,688,159.48</u></u>
<b>LIABILITIES &amp; EQUITY</b>	
Liabilities	4,946,796.11
Equity	<u>1,741,363.37</u>
<b>TOTAL LIABILITIES &amp; EQUITY</b>	<u><u>6,688,159.48</u></u>

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**Applied Ecological Services, Inc.**  
**As of May 20,2015**  
**CONFIDENTIAL**  
**Cash Flow Statement**

	<u>May '14 - Apr 15</u>
OPERATING ACTIVITIES	
Net Income	461,973.99
Adjustments to reconcile Net Income to net cash provided by operations:	
Net cash provided by Operating Activities	461,973.99
INVESTING ACTIVITIES	-376,880.95
FINANCING ACTIVITIES	<u>-189,688.75</u>
Net cash increase for period	-104,595.71
Cash at beginning of period	<u>47,112.71</u>
Cash at end of period	<u><u>-57,483.00</u></u>

Applied Ecological Services, Inc. is a privately owned entity that is not audited as financial information is internally prepared.

**Applied Ecological Services**  
**Leased Equipment List**  
**May-15**

<b>Asset Number</b>	<b>Name</b>	<b>Year</b>	<b>Condition</b>
001028	2006 International Model 4300 truck	09/01/11	good
001025	Twin axle enclosed trailer	09/01/11	good
001026	twin axle enclosed trailer, with heavy duty ramp door	09/01/11	good
001027	twin axle enclosed trailer	09/01/11	good
001030	2006 Ford Ranger	09/01/11	good
001029	2008 Ford Escape	09/01/11	good
001023	18 HP Kawasaki Vtwin ProXL walk behind 30" field & brush mower	09/01/11	good
001024	20HP Kawasaki ProXL tow behind 44" field & brush mower	09/01/11	good
000952	Turf Maker (Used)	04/16/11	good
000956	Crimper	06/01/11	good
000947	288 Punch Plate Assembly; indexing tray & locator block	03/03/11	good
001106	2012 Land Tamer	03/15/12	good
001109	John Deere XUV Green and Yellow	03/21/12	good
001110	John Deere XUV 855D Green and Yellow	03/21/12	good
001113	LKE for asset #352 - New Holland TR 86	09/14/12	good
001107	Kubota Tractor - used	02/25/12	good
001111	Dew Drop Drill	03/08/12	good
001108	2011 Stealth SCH 8520 Tandem #5200 Axles Enclosed Cargo Trailer	03/12/12	good
001179	2014 MISC 6X12 TRAILER	12/01/14	good
001175	2014 JOHN DEERE XUV 855D GATOR	05/31/14	good
001229	2006 FORD F250 VIN# 1FTSX21P76ED70756	03/01/14	good
001231	2006 FORD F250 VIIN#1FTSX21P46ED70746	03/01/14	good
001230	2006 FORD F250 VIIN#1FTSX21PX6ED70752	03/01/14	good
001170	STEALTH SCH 8520 TANDEM ENCLOSED TRAILER	03/01/14	good
001233	2005 FORD F150 SUPERCREW (VIN: 1FTPW14545FA85230)	05/31/14	good
001234	2006 FORD F150 SUPERCAB (VIN: 1FTPX14V76FB12158)	05/31/14	good
001235	2007 FORD F150 SUPERCAB (VIN: 1FTPX14V87FA25211)	05/31/14	good
001236	2004 FORD F150 (VIN 1FTPX14584NB30462)	05/31/14	good

**Applied Ecological Services**  
**Owned Equipment List**  
**May-15**

Asset Number	Name	Year	VIN/Registration Number	In Svc Date	Condition
000855	IH 274 tractor			04/24/09	good
000419	TRAILER (DAVIS WELDING)			07/14/03	good
000951	2010 PJ model cc 14KGVW car hauler 83'Trailer	2010	4P5CC2221A1142230	04/02/11	good
001129	2008 Subaru Outback (part of lease buyout #4116)	2008	4S4BP60C787363489	07/25/12	good
000729	ECC II Weeder			04/21/08	good
000980	John Deer Gator (Used)			10/20/11	good
000975	2011 Deckover Trailer 82" X 22'	2011		09/13/11	good
000483	DOOLITTLE TRAILER 8X16 - (US BANK LEASE)	2005	1DGCS16215MO65483	05/20/05	good
000651	24X102 Gooseneck trailer 14,000#, VIN #1298			03/24/06	good
001130	2009 Subaru Forrester (part of lease buyout #4116)	2009	JF2SH61669H719521	07/25/12	good
001131	2009 Subaru Forrester (part of lease buyout #4116)	2009	JF2SH61689H713347	07/25/12	good
001132	2009 Subaru Forrester (part of lease buyout #4116)	2009	JF2SH61689H714398	07/25/12	good
000481	GVWR TRAILER WITH HYDRAULIC DUMP BOX - (US BANK LEASE)			05/20/05	good
001050	Dew Drop Drill			08/27/12	good
001051	Dew Drop Drill			08/27/12	good
000107	FOBRO STANDARD 1000 BED LIFTER			10/01/94	good
000115	ROTOTILLER			05/12/95	good
000123	TRUAX RANGELAND DRILL			01/01/88	good
000968	Mobile Office			08/25/11	good
000969	Mobile Office			08/25/11	good
000973	Enclosed 2012 Atlas Auto Hauler	2012	5HCKA2025CE024056	09/13/11	good
000955	New Bravo enclosed trailer			06/01/11	good
000923	Enclosed Trailer			03/15/10	good
001167	2008 FORD F350 (VIN 1FTWW31R28ED60344) #V-8	2008	1FTWW31R28ED60344	06/11/13	good
001150	2013 FLATDECK 14,000 GVWR TRAILER	2013		10/01/13	good
001166	2008 FORD F350 (VIN 1FTWW31R08ED22840) #V-5	2008	1FTWW31R08ED22840	06/11/13	good
000921	IH 274 DSI with cultivator (used)			03/05/10	good
001168	2008 FORD F350 (VIN 1FTWW31R88ED26554) #V-9	2008	1FTWW31R88ED26554	06/11/13	good
000869	Batwing 3180 Mower			07/17/09	good
000915	2005 Ford F150XL	2005	1FTRX14W45NA66844	05/21/10	good
000652	24X102 Trailer 16,000#, VIN #1300			03/24/06	good
000949	Stealth Intruder Model SLT enclosed cargo trailer			03/22/11	good
000135	G-BOWIE STRAW MULCHER			01/01/89	good
000942	CW650 Chuck Wagon UTV (2)			03/27/10	good
001112	Land Tamer			05/14/12	good
000176	BUSH HOG 15' BIT WING			06/03/97	good
000778	Hillsboro Trailer			07/01/08	good
000912	2002 Ford F-250 w/plow	2002	1FTNF21L52EA31209	01/08/10	good
001134	Ford F-350 Truck			10/01/12	good
001135	Ford F-350 Truck			10/01/12	good
001136	Ford F-350 Truck			10/01/12	good
000104	FLEXLL-88 GRASS DRILL			05/01/94	good
000110	WESTRUP HA400 BRUSH THRASHER			12/01/94	good
000872	Polaris w/integrated winch			08/17/09	good
000776	Cub Cadet 4x4 utility ATV			07/01/08	good
000862	Polaris Ranger 4X4 XP700 MSRP			05/21/09	good
000154	1988 BOWIE HYDROSEEDER TRAILER	1988	110488725	07/01/92	good
000290	TUCKER DISK - STUDER SUPER SERVICE			06/17/00	good
000936	Nissan Model CL50 LPG powered forklift (used)			09/01/10	good
001058	Used Vermeer Bale Processor			10/03/12	good
000424	GREAT PLAINS NO TILL DRILL			11/19/03	good
000571	ATV Kubota			03/16/06	good
000570	ATV Kubota			03/16/06	good
000984	Staple Guns (4)			12/01/11	good
000175	DYNAWELD FLATBED TRAILER			02/01/97	good

Asset Number	Name	Year	VIN/Registration Number	In Svc Date	Condition
001169	Gator 4 Wheeler			05/19/11	good
001049	John Deere XUV 855 Gator			08/23/12	good
000775	20' Enclosed Trailer (2)			07/01/08	good
000954	Gator 4 Wheeler			05/19/11	good
000978	2011 855D Gators 4 Wheeler	2011		09/22/11	good
000977	2011 855D Gators 4 Wheeler	2011		09/22/11	good
000916	K2 Gleaner Combine (Used)			01/06/10	good
000922	2004 Kubota Tractor M--6800	2004		03/13/10	good
001052	John Deere XUV 855D Gator			08/27/12	good
000321	Grass Drill, Cool box, trash plow			03/30/01	good
000574	2-2--0 Polaris 6X6			04/03/06	good
000860	Tractor and Loader			05/05/09	good
000378	Kubota 4G10HST Loader (USED)			03/05/02	good
001133	Ford Truck F-650 VIN 3FRWX65E48V694226 Med Duty Truck	2009	3FRWX65E48V694226	08/28/12	good
000788	2008 Subaru Outback	2008		06/01/08	good
000486	36" FORKS & BOBCAT W/BUCKET - (US BANK LEASE)			05/20/05	good
000785	8' Truax Drill			07/01/08	good
000857	No-Till Compact Drill 606NT			05/01/09	good
000418	773T BOBCAT W/ DELUXE CAB AND 42" PALLET FORKS			03/01/03	good
001019	2004 Ford F250 Super Crew	2004	1FTNW21P84EB70580	09/14/11	good
000657	Case IH Tractor w/loader 4230 MFD			02/28/07	good
000854	Bobcat S185K skid steer loader 2007 - used	2007		04/23/09	good
000489	5030 KUBOTA - (US BANK LEASE)			05/20/05	good
000983	Cat 257B Track Skid			11/17/11	good
000876	2000 Morbark Model 2400 Brush Chipper	2000		12/21/09	good
000400	2000 FORD F550	2000	1FDAW57F6YEA12528	09/05/03	good
000925	2008 Turfmaker Hydromulcher	2008		03/23/10	good
000649	2006 Subaru Outback - #1104	2006	4S4BP61C867339018	07/14/06	good
000648	2006 Subaru Outback #9018	2006	4S4BP61C167361104	04/11/06	good
000777	6x6 Sportsman Polaris (3)			07/01/08	good
000645	2006 Toyota Prius #3419	2006	JTDKB20UX63173419	04/28/06	good
000646	2006 Toyota Prius #4352	2006	JTDKB20U167074352	04/28/06	good
000329	2002 Subaru Outback Wagon	2002		12/08/01	good
000982	2005 Land Tamer	2005		11/01/11	good
000423	LARGE AERO MULCHER			10/13/03	good
001147	JOHN DEERE 5065E (49-53 PTO HP)			09/26/13	good
000180	1997 FORD F350	1997	1FTYJW36F4VEB72221	06/30/97	good
000974	Soil Sampling Part for JD Gator			09/13/11	good
000647	2006 Toyota Highlander	2006	JTEEW21A560006856	04/03/06	good
000650	2000 International 16' Dump Truck	2000	1HTSCAAM3YH234544	03/22/06	good
000327	2001 Ford F250 Super 4x4	2001	1FTNW21F21EB83618	03/12/01	good
000644	2006 Ford F350 Cre Cab #8417	2006	1FTWW31P86ED18417	03/19/06	good
000643	2006 Ford F350 Crew Cab #6225	2006	1FTWW31P06ED16225	03/19/06	good
000328	2001 Ford F350 Crew Cab	2001	1FDAW57F6YEA12528	04/18/01	good
000928	2007 Caterpillar Model 257B skidster w/attachments	2007		04/01/10	good
000913	2006 Semi37732	2006	1FUJA6CK36LV71953	02/19/10	good
001146	2012 AUTOBLANKET 5200 XS - USED	2012		08/26/13	good



# Josh Kraemer

## Construction Manager



### EDUCATION

B.S., Reclamation, with an Emphasis in Physical Reclamation and Minors in Geology and Environmental Science, University of Wisconsin-Platteville, Dec. 2004

### PROFESSIONAL INFORMATION

Commercial Pesticide Applicator License: WI

CPR/First Aid Certifications

Fire Training Certifications: L180, S130-S190, S290

HAZWOPER: 40-hr Training Certification

OSHA 10-hr Construction Safety and Health Training Certification

Prescribed Burn Training, The Nature Conservancy

### AFFILIATIONS

Association of General Contractors of WI

WI Landscape Contractor Association

### SUMMARY OF EXPERIENCE

Josh Kraemer has experience in managing and building projects for the installation of native plant materials in areas ranging from formal native landscapes to restorations in wetlands, prairies, bogs, savannas, dunes and woodlands in Iowa, Illinois, Minnesota and Wisconsin. Starting as a Crew Foreman for AES in 2005, Kraemer became a Project Manager in 2008 and, since 2011, a Construction Manager responsible for AES' Appleton, WI, office. He directs crews working on projects throughout the state and surrounding areas including multiple remediation sites classified as Great Lakes' Areas of Concern by the U.S. Environmental Protection Agency. He has also led crews conducting selective woodland restoration activities, including brushing, bioengineering techniques, erosion control, large plant installations and herbicide application to control invasive, non-native species. Kraemer is also an experienced equipment operator.

### SELECT PROJECT EXPERIENCE

**Appleton Native Vegetation Restoration.** Alternative stormwater implementation and management. Appleton, WI.

**Sheboygan River Area of Concern Habitat Restoration.** Sheboygan, WI.

**Guardian Pipeline.** Invasive species control in various Wisconsin DNR regulated wetlands. Ixonia, WI.

**Aurora-Grafton Medical Center.** Installation, planting and management of natural areas. Grafton, WI.

**Midwest Remediation Project.** Restoration and bank stabilization using a variety of bioengineering and erosion control techniques. WI.

**Reach 1 Habitat Improvements.** Glenview, IL.

**Glacier Hills County Park.** Invasive species control in sensitive areas with threatened and endangered species. Richfield, WI.

**Chicago Park District Natural Areas.** Managing, maintaining, and new construction installation of natural areas including dune restoration. Chicago, IL.

**Lake Forest Cemetery Ravine Restoration.** Restoration and bank stabilization using a variety of bioengineering and erosion control techniques. Lake Forest, IL.

**Metra State Line Wetland Mitigation.** Aquatic planting, herbivory protection, maintenance and management. Antioch, IL.

**Carrington Reserve Conservation Development.** Invasive species control in a federally protected fen wetland. Carrington, IL.

**South Milwaukee School.** Implementation of restoration plan/invasive species control (in federally protected areas) for Rawson's Woods, a fragmented Beech Forest unique to southeastern WI. South Milwaukee, WI.



# Chuck Campbell

Project Estimator, Restoration Ecologist



## EDUCATION

B.S. in Biology with a Certificate in Environmental Studies. University of Wisconsin - Madison, 2002

## PROFESSIONAL INFORMATION

ISA Certified Arborist (WI-0832A)

NWCG S-130/190/290/390 Firefighter, Fire Behavior Certification

Certified Commercial Pesticide Applicator: WI, IL, IN, IA  
WI Certification #67694 (expires 5/31/2015) in Categories 001.1 Field and Vegetable Crops and 005.0 Aquatic & Mosquito

## AFFILIATIONS

Member, Keweenaw Bay Indian Community, Baraga, MI  
ID# 3605

## SUMMARY OF EXPERIENCE

Chuck Campbell is a professional Project Estimator and Restoration Ecologist for AES' Contracting Division. He has provided bids and cost estimates on hundreds of projects ranging from multi-year, multi-million dollar remediation projects to prescribed burns and backyard rain gardens for homeowners. As a Project Estimator, Campbell is involved with all stages of project administration. He creates proposals including preparation of estimates, qualifications and technical writing submittals. Campbell also performs budget tracking, management of materials procurement, customer service, contract administration and compliance checks for AES projects nationwide. Prior to his role as an Estimator, Campbell worked for AES as part of the Contracting Division's Restoration Field Crew. Campbell has 9 years of professional restoration experience and 7 years of parallel prescribed burning experience. He is also a Certified Arborist. Campbell's project experience includes work with mitigation banks, streambanks, wetlands, and conservation developments, among others. Campbell's ecological restoration and management skills include vegetative monitoring, seeding, planting, brush removal, prescribed burning, erosion control, herbicide application, seed collection, mowing and invasive species control.

## SELECT PROJECT EXPERIENCE

- Appleton Native Vegetation Stormwater Management.** Appleton, WI
- Sheboygan River Habitat Restoration.** Sheboygan, WI
- Newburg Dam Removal Seeding.** Ozaukee County, WI
- Springbrook Prairie Restoration & Wetland Mitigation.** Naperville, IL
- Iowa NRCS/USDA Floodplain Restoration.** Multiple counties, IA
- Milwaukee River Channel/Lincoln Creek Remediation.** Milwaukee, WI
- St. Joseph Creek South Branch Stream Stabilization.** Downers Grove, IL
- Secret Pond Channel & Swale Stabilization.** Madison, WI
- Jelkes Creek Wetland Mitigation Bank.** Sleepy Hollow, IL
- Indiana DNR Bongji Nature Preserve Management.** Gary, IN
- Butterfield Wetland Mitigation Bank.** Libertyville, IL
- Ferson Creek Wetland Mitigation Bank.** St. Charles, IL
- Prairie Crossing Conservation Development.** Grayslake, IL
- Kilbuck Creek Wetland Mitigation Bank.** Rockford, IL
- Flambeau Mine Reclamation.** Ladysmith, WI
- Mink Creek Wetland Mitigation Bank.** Bolingbrook, IL



# Austin Brose

## Equipment Operator



### EDUCATION

B.S., Wildlife Management & Ecology,  
University of WI-Stevens Point, 2007

### PROFESSIONAL INFORMATION

Commercial Pesticide Applicator  
License: IA, IL, WI

Operational Use/Safety Training and  
Certifications: Chainsaw, Chipper Use,  
Erosion Control (E-Mat Installation/  
Removal), Fork Lift, Heavy Machinery,  
Herbicide, Skidsteer, Straw Mulcher,  
Tractor

CPR/First Aid Certifications

GPS (Trimble) Training

I-100 Incident Command System  
Certification

L-180, S-130, S-190, S-290, S-212  
Burn Training & Fire Certifications

### SUMMARY OF EXPERIENCE

As an Equipment Operator for AES, Austin Brose is responsible for operation, maintenance, repair and supervision of large and small equipment and tools required for AES' restoration projects. His professional training, field experience and professional work on restoration projects across the country give Brose the knowledge to work with a variety of equipment to meet project, site and client-specific needs. Brose's also conducts and documents general conditions of equipment and associated work areas to ensure that safety and compliance procedures are followed.

Brose's restoration qualifications expertise includes equipment operation (chainsaw, heavy machinery, forklift, skidsteer, hand and power tools); ecological maintenance activities (herbiciding, mowing); erosion control methods, including erosion mat installation; seeding by hand and machine; and planting native trees, shrubs and live stakes.

Prior to working at AES, Brose served as a Forestry Technician responsible for timber management activities for the U.S. Forest Service in Walden, Colorado. Brose also provided restoration services, especially troubleshooting and equipment repair, as a Stewardship Crew Supervisor and Biologist for oil and gas producers throughout the West.

### SELECT PROJECT EXPERIENCE

**Sheboygan River Habitat Restoration.** Sheboygan, WI

**Urban Ecology Center Centennial Arboretum & Trail.** Milwaukee, WI

**Milwaukee River Channel/Lincoln Creek Remediation.** Milwaukee, WI

**Pennoyer Beach Outfall Basin.** Kenosha, WI

**St. Joseph's Creek South Branch Stream Stabilization.** Downers Grove, IL

**Secret Pond Channel & Swale Stabilization.** Madison, WI

**Springbrook Prairie Restoration & Wetland Mitigation.** Naperville, IL

**Jelkes Creek Quarry Reclamation.** Dundee Township, Kane County, IL

**Shullsburg Mine Reclamation.** Shullsburg, WI.

**Appleton Native Vegetation Restoration.** Appleton, WI

**Carrington Reserve Management/Maintenance.** West Dundee, IL

**Bull Creek Water Quality Project/Stream Stabilization.** University of St. Mary on the Lake, Mundelein, IL



# Dan Walker

## Equipment Operator



### EDUCATION

B.S., Recreation Park & Tourism Administration (NRPA/AALR accredited curriculum), with a minor in Natural Resource Conservation, Western Illinois University, Macomb, IL, 2005

A.S., Highland Community College, Freeport, IL, 2002

### PROFESSIONAL INFORMATION

Operational Use/Safety Training and Certifications: ATV, Brushsaw, Chainsaw, Fork Lift, Heavy Machinery, Skidsteer, Tractor

Commercial Pesticide Applicator License: IA, IL, WI

CPR/First Aid Training Certifications

L-180, S-130, S-190, S-290

### AFFILIATIONS

Illinois Park & Recreation Association

West Illinois University Forestry Club

Wilderness Education Association

### SUMMARY OF EXPERIENCE

Dan Walker has over 15 years of experience in professional landscaping and restoration services. Walker joined AES in 2005 and is currently an Equipment Operator for the company. Previously, Walker served as a Restoration Field Technician, Crew Leader and Project Foreman for AES' Contracting Division. In this capacity, Walker supervised AES projects and staff at sites throughout the Midwest. As an Equipment Operator, Walker is responsible for operation, maintenance, repairs and supervision of heavy equipment used in AES' projects. Walker's professional restoration qualifications include native landscape installation, invasive species control and removal and heavy machine equipment operation. He has provided ecological construction and maintenance services for a variety of projects, from plant and wildlife habitat enrichment to stormwater management.

### SELECT PROJECT EXPERIENCE

- Sheboygan River Habitat Restoration.** Sheboygan, WI
- Urban Ecology Center Centennial Arboretum & Trail.** Milwaukee, WI
- Milwaukee River Channel/Lincoln Creek Remediation.** Milwaukee, WI
- Pennoyer Beach Outfall Basin.** Kenosha, WI
- Springbrook Prairie Restoration and Wetland Mitigation.** Naperville, IL
- St. Joseph Creek South Branch Stream Stabilization.** Downers Grove, IL
- Appleton Native Vegetation Restoration.** Appleton, WI
- Carrington Reserve Management/Maintenance.** West Dundee, IL
- Bull Creek Water Quality Project/Stream Stabilization.** University of St. Mary on the Lake, Mundelein, IL
- Prairie Ridge.** Project Supervisor. Naperville, IL
- Prairie View Park Brushing.** Project Supervisor. Vernon Hills, IL
- Rolling Savanna.** Project Supervisor. Grayslake, IL
- Woods of South Barrington.** Install and Management. Barrington, IL
- Winchester Glen.** Installation and Management. Carpentersville, IL
- Noel's Prairie.** Brushing, Indiana DNR. Chesterton, IN
- Illinois Beach Savanna.** Winthrop Harbor, IL
- Tollway Environmental Studies.** Oak Brook, IL



# Alex Solawetz

## Construction Supervisor



### EDUCATION

B.S. in Forest Management,  
University of Wisconsin-Stevens Point,  
Dec. 2010

### PROFESSIONAL INFORMATION

Certified Commercial Pesticide  
Applicator: WI

Certification #87864 (expires 5/31/16 in  
Categories 001.1 Field and Vegetable  
Crops and 005.0 Aquatic & Mosquito

OSHA HAZWOPER: 40-hr Training  
Certification

CPR/First Aid Certifications

NWCG Prescribed Fire Training:

ICS-100

FI-110

L-180

S-130

S-190

L-280

S-131 Firefighter Type 1

S-211 Portable Pumps & Water Use

S-212 Wildland Fire Chain Saws

S-215 Fire Operations in the Wildland/  
Urban Interface

### SUMMARY OF EXPERIENCE

Alex Solawetz joined AES in 2011. He is now a Construction Supervisor for AES' Brillion, WI, office. Having worked as a professional in the field of restoration and prescribed burning since 2007, Solawetz is experienced and knowledgeable about restoration needs for a broad range of projects. He began his career working at the Wisconsin Department of Natural Resources, where he became trained and very familiar with using large and small equipment for restoration purposes. Solawetz also gained extensive prescribed burning experience while working as a National Wildfire Coordinating Group (NWCG) Wildland Firefighter (Type II). His restoration qualifications include equipment operation; ecological maintenance activities (herbicide, mowing, monitoring); GPS; invasive species control; erosion control methods, including erosion mat installation; native seeding by hand and machine; and planting native trees, shrubs and live stakes.

### SELECT PROJECT EXPERIENCE

**Appleton Native Vegetation Management.** Project Supervisor. Alternative stormwater implementation and management. Appleton, WI

**Sheboygan River Habitat Restoration.** Sheboygan, WI

**Newburg Dam Removal Seeding.** Ozaukee County, WI

**Urban Ecology Center Centennial Arboretum & Trail.** Slope stabilization and trail rehabilitation. Milwaukee, WI

**Milwaukee River Channel/Lincoln Creek Remediation.** Erosion control, seeding and stabilizing remediated bank areas for PCB-contaminated stream. Milwaukee, WI

**Midwest Remediation Project.** Remediating, stabilizing, and restoring a 4-mile stretch of PCB-contaminated stream. WI

**Secret Pond Channel & Swale Stabilization.** Madison, WI

**Lake Butte des Morts.** WI

**Aurora-Grafton Medical Center.** Installation, planting and management of natural areas. Grafton, WI

**Guardian Pipeline.** Invasive species control in various Wisconsin DNR regulated wetlands. Ixonia, WI

**University of Wisconsin-Madison West Campus Stormwater Phase 2.** Madison, WI

**Wahl Ave Bluff.** Herbicide exotic species and woody resprouts for Milwaukee County Parks on a stabilized bluff overlooking Lake Michigan. Milwaukee, WI



# Marshall Black

## Restoration Field Crew



### EDUCATION

B.A. in Geography, Environmental Emphasis, University of Wisconsin-Milwaukee, 2011

### PROFESSIONAL INFORMATION

Certified Commercial Pesticide Applicator: WI  
Certification #90130 (expires 5/31/2017)  
in Category 001.1 Field and Vegetable Crops

OSHA 10-Hour Construction Certification

HAZWOPER 8-Hour Refresher

CPR/First Aid Certifications

### SUMMARY OF EXPERIENCE

Marshall Black is a Restoration Field Crew based out of AES' Brillion, WI, office. He has worked for AES since 2011. Black is field-trained in natural resource management and has been professionally trained in land surveying, forest measurement, plant identification, soil conservation, watershed and soil inventory methods, aquatic ecosystem evaluation and wildlife management techniques. Prior to joining AES, Black worked as an Assistant Park Supervisor for Portage County Parks Department, where he was responsible for maintaining county park grounds, supervising user activity, operating equipment, identifying plants, trail clearing and erosion control. At AES, Black has worked on ecological restorations and provided ecological management for projects ranging from a large-scale habitat restoration as part of the Sheboygan River remediation to native vegetation restoration and stormwater management for the City of Appleton. His restoration qualifications include equipment operation; ecological maintenance activities (herbiciding, mowing, monitoring); invasive species control; erosion control methods, including erosion mat installation; native seeding by hand and machine; and planting native trees, shrubs and live stakes.

### SELECT PROJECT EXPERIENCE

**Sheboygan River Habitat Restoration.** Sheboygan, WI

**Appleton Native Vegetation Restoration.** Appleton, WI

**Aurora Grafton Medical Center.** Installation, planting and management of natural areas. Grafton, WI

**Urban Ecology Center Centennial Arboretum & Trail.** Slope stabilization and trail rehabilitation. Milwaukee, WI

**City of Kenosha Parks Planting and Maintenance.** Kenosha, WI

**University of Wisconsin-Madison West Campus Stormwater Phase 2.** Madison, WI

**Milwaukee River Channel/Lincoln Creek Remediation.** Erosion control, seeding and stabilizing remediated bank areas for PCB-contaminated stream. Milwaukee, WI

**Iowa NRCS/USDA Floodplain Restoration.** Multiple counties, IA

**Secret Pond Channel and Swale Stabilization and Maintenance.** Madison, WI

**Newburg Dam Removal Seeding.** Ozaukee County, WI

**Menomonee River Stabilization.** Erosion control, planting and seeding streambank areas. Menomonee Falls, WI



# Tad Krogstad

## Restoration Field Crew

### EDUCATION

B.S. in Forest Administration, with an Emphasis in Business Administration, University of Wisconsin-Stevens Point, 2004

### PROFESSIONAL INFORMATION

Certified Commercial Pesticide Applicator: WI  
Certification #91793 (expires 3/31/2018)  
in Categories 001.1 Field and Vegetable Crops, 003.0 Turf and Landsp, 005.0 Aquatic & Mosquito

### SUMMARY OF EXPERIENCE

Tad Krogstad joined AES in 2013 and is a Restoration Field Crew based out of AES' Brillion, WI, office. He has a strong environmental science background combined with proven field experience on large and small-scale restoration projects. Krogstad's restoration expertise includes invasive species control; erosion control methods; ecological maintenance activities (herbiciding, mowing); native seeding by hand and machine; and planting native trees, shrubs and live stakes. Prior to joining AES, Krogstad worked at the Wisconsin Department of Natural Resources, where he mapped and recorded tree inventory data, conducted Karner blue butterfly surveys to locate the seasonal habitat of the state-endangered species and issued fire burning permits to the public. He also worked as a forester for a private timber company, where he worked closely with DNR Foresters to ensure timber sales did not have an adverse environmental impact and met state forestry guidelines.

### SELECT PROJECT EXPERIENCE

**Appleton Native Vegetation Restoration.** Appleton, WI

**Sheboygan River Habitat Restoration.** Sheboygan, WI

**Guardian Pipeline.** Invasive species control in various Wisconsin DNR regulated wetlands. Ixonia, WI

Project	Yr Started	Completion	Contract Amt	Location	Type of Contract	Owner
Heritage of Huntley Maintenance	2010	2012	\$ 10,125.00	Huntley, IL	Maintenance	Heritage of Huntley HA 110 N. Brockway Street Suite 320 Palatine, IL 60067 Charles Haas: 847-757-7171
BB Clarke Shoreline Planting	2012	2012	\$ 11,000.00	Madison, WI	Planting	City of Madison City-County Building, Room 115 210 Martin Luther King, Jr. Blvd. Madison, WI 53703 Sarah Lerner: 608-261-4281
Fermilab Savanna	2012	2012	\$ 11,000.00	Batavia, IL	Ecosystem Restoration	Fermilab PO Box 500 Mill Stop 306 Batavia, IL 60510 630-840-3005
Wartmann Prairie 2012 Maint	2012	2012	\$ 11,400.00	Edgerton, WI	Maintenance	Wartmann, Bill P.O. Box 231 Edgerton, WI 53534 Dave Mezger: 608-884-6171
Willow Creek Church	2012	2012	\$ 12,200.00	South Barrington, IL	Maintenance	Willow Creek Church 67 East Algonquin Rd South Barrington, IL 60010-6143 Jorg Hentschel: 847-765-0100
North Pointe Burn 2012	2012	2012	\$ 13,600.00	Rockton, IL	Maintenance	Beloit Health System 1969 W. Hart Rd. Beloit, WI 53511-2230 Gus Larson: 815-525-4040
Illinois Beach Savanna	2011	2012	\$ 19,000.00	Winthrop Harbor, IL	Maintenance	Lake County Forest Preserve 1899 West Winchester Road Libertyville, IL 60048-1199 Debbie Maurer: 847-968-3285
White Oaks Subdivision Detention	2012	2012	\$ 22,600.00	Carpentersville, IL	Alternative Stormwater Installation	Village of Carpentersville 1200 L.W. Besinger Drive Carpentersville, IL 60110 847-551-3480
South Milwaukee Maintenance	2012	2012	\$ 23,000.00	South Milwaukee, WI	Maintenance	School Dist. of So. Milwaukee 1001 15th Ave South Milwaukee, WI 53172 Jeff Siegman: 414-766-5075
Menomonee River Stabilization	2012	2012	\$ 23,500.00	Menomonee Falls, WI	River Stabilization	Milwaukee Riverkeeper 1845 N. Farwell Avenue, Suite 100 Milwaukee, WI 53202 Cheryl Nenn: 414-287-0207
Carrington Reserve 2012	2012	2012	\$ 30,000.00	West Dundee, IL	Maintenance	West Dundee Public Works Dept. 900 Angle Tarn West Dundee, IL 60118 Chuck Behm: 847-551-3815
Spella Park Fen Area Restoration	2012	2012	\$ 36,000.00	Algonquin, IL	Ecosystem Restoration	Village of Algonquin 110 Meyer Drive Algonquin, IL 60102 Michele Zimmerman: 847-658-2754
Reach 1 Habitat	2010	2012	\$ 127,200.00	Glenview, IL	River Stabilization	Lake County Grading Company LLC 32901 N. Highway 21 PO Box 1 Libertyville, IL 60048 Mike Deninno: 847-362-2590
Johnson Property Seeding	2013	2013	\$ 10,000.00	Greenville, WI	Ecosystem Restoration	Johnson, Peter 8034 West Wisconsin Avenue Wauwatosa, WI 53213 414-750-5454
Prairie Crossing 2013 Burn	2013	2013	\$ 10,000.00	Grayslake, IL	Maintenance	Premier Residential Management 4180 Route 83 Suite 14 Long Grove, IL 60047 Heather McArthur
Sand Prairie Restoration Phase V	2013	2013	\$ 10,900.00	Pembroke, IL	Maintenance	Illinois DNR - Iroquois County 301 South Date Street Gibson City, IL 60936 Eric Smith 217-784-4730
Boneyard Creek	2013	2013	\$ 11,500.00	Champaign, IL	Alternative Stormwater Installation	City of Champaign Public Works Department 702 Edgebrook Drive Champaign, IL 61820 217-403-4710
Clover Ridge Maintenance	2013	2013	\$ 12,000.00	Itasca, IL	Maintenance	Clover Ridge Homeowners Association P.O. Box 731 Itasca, IL 60143 Terry Karner: 847-338-9791

Project	Yr Started	Completion	Contract Amt	Location	Type of Contract	Owner
Milwaukee River & Swamp Brushing	2012	2013	\$ 13,000.00	Campbellsport, WI	Maintenance	Wisconsin Department of Natural Resources 101 South Webster Street PO Box 7921 Madison, WI 53707-7921 Joe Henry: 920-662-5194
North Point Burn	2013	2013	\$ 13,600.00	Rockton, IL	Maintenance	Beloit Health System 1969 W Hart Rd Beloit, WI 53511-2230 Gus Larson: 815-525-4040
Butterfield Burn 2013	2013	2013	\$ 14,500.00	Libertyville, IL	Maintenance	Libertyville Township 359 Merrill Court Libertyville, IL 60048 Chris Slago: 847-816-6800
Hanson Prescribed Burn 2013	2013	2013	\$ 14,800.00	Romeoville, IL	Maintenance	Hanson Aggregates North America PO Box 650274 Dallas, TX 75265-0274 Randy Boisvert: 708-731-2599
Max McGraw 2013 Maintenance	2013	2013	\$ 15,400.00	Dundee, IL	Maintenance	Max McGraw Wildlife Foundation P.O. Box 9 Dundee, IL 60118 Clark Ganshirt: 847-741-8000
Carrington Reserve 2013	2013	2013	\$ 26,000.00	West Dundee, IL	Maintenance	West Dundee Public Works Dept 900 Angle Tarn West Dundee, IL 60118 Chuck Behm: 847-551-3815
Boulder Ridge Villas Maintenance	2013	2013	\$ 30,600.00	Lake in the Hills, IL	Maintenance	Prange, Larry Villa's Property Owner Assoc. 5 Juniper Court Lake in the Hills, IL 60156 847-854-6964
Urban Ecology Center Trail	2013	2013	\$ 48,800.00	Milwaukee, WI	Ecosystem Restoration	Veit & Company, Inc. 14000 Veit Place Rogers, MN 55374 Dan Melstrom: 414-372-9803
Anita Purves Nature Center	2011	2013	\$ 60,000.00	Urbana, IL	Native Landscaping	Urbana Park District 1011 E. Kerr Ave Urbana, IL 61802-2074 Derek Liebert: 217-344-9583
Rotary Centennial Arboretum	2012	2013	\$ 70,200.00	Milwaukee, WI	Ecosystem Restoration	Veit & Company, Inc. 14000 Veit Place Rogers, MN 55374 Dan Melstrom: 414-372-9803
Newburg Dam Removal	2012	2013	\$ 82,100.00	Cedarburg, WI	River Stabilization	Solutions 101 LLC P.O. Box 2199 Neenah, WI 54957 Rod Paul: 920-931-3826
Aurora Grafton Med. Center	2010	2013	\$ 84,000.00	Grafton, WI	Ecosystem Restoration	Bruce Co. 2830 W Beltline Hwy PO Box 620330 Middleton, WI 53562-0330 608-836-7041
Pennoyer Beach Outfall Basin	2012	2013	\$ 106,100.00	Kenosha, WI	Alternative Stormwater Installation	Veit & Company, Inc. 14000 Veit Place Rogers, MN 55374 Dan Melstrom: 414-372-9803
Secret Pond	2011	2013	\$ 149,700.00	Madison, WI	Ecosystem Restoration	Veit & Company, Inc. 14000 Veit Place Rogers, MN 55374 Dan Melstrom: 414-372-9803
Appleton Native Restoration	2013	2013	\$ 200,000.00	Appleton, WI	Ecosystem Restoration	City of Appleton Department of Public Works PO Box 2428 Appleton, WI 54912-2428 Peter Neuberger: 920-832-6477
Atkinson Rd Mitigation Bank	2010	2013	\$ 342,000.00	Green Oaks, IL	Ecosystem Restoration	Land and Water Resources, Inc 9575 Higgins Rd Suite 901 Rosemont, IL 60018 John Ryan: 847-692-7170
Lake County Hourly Brushing	2012	2013	\$ 379,400.00	Libertyville, IL	Maintenance	Lake County Forest Preserve 1899 West Winchester Road Libertyville, IL 60048-1199 Leslie Berns: 847-968-3293
Prairie Crossing 2014 Burn	2014	2014	\$ 10,000.00	Grayslake, IL	Maintenance	Premier Residential Management 4180 Route 83 Suite 14 Long Grove, IL 60047 Heather McArthur
Bloomington Maintenance 2013	2013	2014	\$ 11,800.00	Bloomington, IL	Maintenance	Bloomington Township Supervisor's Office 123 N. Rosedale Rd. Bloomington, IL 60108 Ray Wanders: 630-529-7715

Project	Yr Started	Completion	Contract Amt	Location	Type of Contract	Owner
Prairie Green Wetland Maint	2010	2014	\$ 13,000.00	Geneva, IL	Maintenance	City of Geneva City Administrator 22 South First Street Geneva, IL 60134 Dick Untch: 630-232-0871
North Pointe Prairie Burn 2014	2014	2014	\$ 13,600.00	Rockton, IL	Maintenance	Beloit Health System 1969 W. Hart Rd. Beloit, WI 53511-2230 Gus Larson: 815-525-4040
Burr Oak Valley Clearing Phase I	2013	2014	\$ 13,700.00	Rockton, IL	Maintenance	Natural Land Institute 320 S. Third St. Rockford, IL 61104 Kevin Rohling
Austin Road Greenbelt	2014	2014	\$ 14,000.00	Janesville, WI	Ecosystem Restoration	Rock Road Companies, Inc. 301 W. B-R Townline Rd Janesville, WI 53547 Bobby Kennedy: 608-752-8944
Sheboygan Habitat Trees & Shrubs	2014	2014	\$ 14,300.00	Sheboygan, WI	Ecosystem Restoration	City of Sheboygan 828 Center Avenue, Suite 104 Sheboygan, WI 53081 920-459-3377
Hanson Prescribed Burn 2014	2014	2014	\$ 14,400.00	Romeoville, IL	Maintenance	Hanson Aggregates North America PO Box 650274 Dallas, TX 75265-0274 Randy Boisvert: 708-731-2599
South Milwaukee School 2014	2014	2014	\$ 15,400.00	South Milwaukee, WI	Maintenance	School Dist. of So. Milwaukee 1001 15th Ave South Milwaukee, WI 53172 Jeff Siegman: 414-766-5076
Prairie Glen Management	2011	2014	\$ 15,600.00	Sugar Grove, IL	Maintenance	The Windham Group 400 S Knoll St, Unit C PO Box 307 Wheaton, IL 60189-0307 Kelly Knerim: 630-462-7907
Monroe Clinic Brodhead	2014	2014	\$ 16,650.00	Brodhead, WI	Ecosystem Restoration	Monroe Clinic - WI 515 22nd Avenue Monroe, WI 53566 Steve Borowski: 608-324-1671
Carrington Reserve 2014	2014	2014	\$ 17,000.00	West Dundee, IL	Maintenance	West Dundee Public Works Dept. 900 Angle Tarn West Dundee, IL 60118 Chuck Behm: 847-551-3815
Wartmann Prairie 2014	2014	2014	\$ 21,500.00	Edgerton, WI	Maintenance	Wartmann, Bill P.O. Box 231 Edgerton, WI 53534 Dave Mezger: 608-884-6171
Jelkes Creek Reclamation 2014	2014	2014	\$ 22,600.00	Sleepy Hollow, IL	Maintenance	Dundee Township 611 East Main Street, Suite 201 E. Dundee, IL 60118 Sue Harney: 847-428-8092
Szafarski Implementation	2014	2014	\$ 23,200.00	Marengo, IL	Ecosystem Restoration	Szafarski, Frank 20607 E. River Rd Marengo, IL 60152 815-568-1721
Falcon Ridge Restoration	2011	2014	\$ 31,600.00	Algonquin, IL	Ecosystem Restoration	Village of Algonquin 110 Meyer Drive Algonquin, IL 60102 Michele Zimmerman: 847-658-2754
Secret Pond Maintenance	2013	2014	\$ 32,000.00	Madison, WI	Maintenance	Wisconsin Department of Administration Rm 119 risser Justice Center 17 West Main Street Madison, WI 53702 Rhonda James: 608-863-3032
Milwaukee River Spawning Reef	2014	2014	\$ 39,600.00	Milwaukee, WI	Fish Habitat Structure Installation	Wisconsin DNR 600 E Greenfield Ave Milwaukee, WI 53204 Will Wawrzyn: 414-303-0120
Souwanas Creek Stabilization	2014	2014	\$ 40,000.00	Algonquin, IL	River Stabilization	Copenhaver Construction 75 Koppie Drive Gilberts, IL 60136 Chuck Polito: 224-725-9944
Appleton Native Vegetation	2014	2014	\$ 200,000.00	Appleton, WI	Ecosystem Restoration	City of Appleton Department of Public Works PO Box 2428 Appleton, WI 54912-2428 Peter Neuberger: 920-832-6477
Simmons Island Boardwalk Phase 1A	2014	2014	\$ 200,000.00	Kenosha, WI	Ecosystem Restoration	H & H Civil Construction 21110 Main Street Collins, WI 54207 Doug Hansen: 920-772-4422

Project	Yr Started	Completion	Contract Amt	Location	Type of Contract	Owner
Ironwood Golf Course Ponds	2014	2014	\$ 333,000.00	Normal, IL	Alternative Stormwater Installation	Town of Normal Parks and Recreation 1901 N. Towanda Ave. Normal, IL 61761 Doug Wiggs 309-454-9540
Davis Park Seeding	2011	2015	\$ 12,800.00	Davis, IL	Ecosystem Restoration	Village of Davis 104 E McKimmy St Davis, IL 61019 Ray Caswell: 815-262-8448
Waste Management CID facility IL	2013	2015	\$ 13,400.00	Chicago, IL	Phytoremediation Planting	Andrews Engineering, Inc. 3300 Ginger Creek Drive Springfield, IL 62711 Brain Wozniak: 630-544-3332
KD Park Phragmites Control	2014	2015	\$ 14,000.00	Kenosha, WI	Maintenance	Ozaukee Washington Land Trust - WI PO Box 917 West Bend, WI 53095 262-338-1794
Washington Street Maintenance	2012	2015	\$ 14,900.00	Naperville, IL	Maintenance	City of Naperville 400 S Eagle St. P.O. Box 3020 Naperville, IL 60566-7020 Peter Zibble: 630-305-5992
Lake Ripley Woody Invasives	2011	2015	\$ 20,100.00	Cambridge, WI	Maintenance	Lake Ripley Management District N4450 CTH A Cambridge, WI 53523 Lisa Griffin: 608-423-4537
Dakridge Drive Stream Restoration	2014	2015	\$ 65,200.00	Combined Locks, WI	Alternative Stormwater Installation	Ed Gersek, Inc. 477 N. Ronsman Rd. Green Bay, WI 54301 920-468-0345
Spring Bluff Phase III Clearing	2014	2015	\$ 68,400.00	Winthrop Harbor, IL	Maintenance	Lake County Forest Preserve 1899 West Winchester Road Libertyville, IL 60048-1199 Debbie Maurer: 847-968-3285
Carrington Crossing Management	2011	2015	\$ 96,000.00	West Dundee, IL	Maintenance	Carrington Crossing, LLC 425 Maple Ave Carpentersville, IL 60110 Barbara Colletier: 847-426-4560
UW Madison West Campus Stormwater	2012	2015	\$ 123,600.00	Madison, WI	Alternative Stormwater Installation	Terra Engineering & Construction 2201 Vondron Road Madison, WI 53718-6795 Mike Heitman: 608-221-3501
Ulao Creek Habitat Enhancement	2013	2015	\$ 136,000.00	Cedarburg, WI	Ecosystem Restoration	Solutions 101 LLC P.O. Box 2199 Neenah, WI 54957 Rod Paul: 920-931-3826
Riverboat Road Design-Build Resto	2014	2015	\$ 160,000.00	Milwaukee, WI	River Stabilization	River Revitalization Foundation 2134 N Riverboat Road Milwaukee, WI 53202 Kim Gleffe: 414-271-8000
St. Joseph Creek S. Branch	2011	2015	\$ 213,200.00	Downers Grove, IL	River Stabilization	Village of Downers Grove 5101 Walnut Ave Downers Grove, IL 60515 Jeff Loster: 630-434-6875
Milwaukee River Channel	2011	2015	\$ 1,476,100.00	Milwaukee, WI	Ecosystem Restoration	Lee & Ryan 1707 Melody Lane Greenfield, IN 46140 Dan Kolezar: 317-409-2703
Appleton Bioswale Planting	2014	2016	\$ 20,000.00	Appleton, WI	Planting	Appleton Parks and Recreation 100 N. Appleton St. Appleton, WI 54911 Bill Lecker: 920-832-3915
Amberley Woods Maintenance	2014	2016	\$ 22,000.00	Lake Forest, IL	Maintenance	Amberley Woods Master Association PO Box 699 Lake Zurich, IL 60047 Greg Brown: 847-362-9624
Fitchie Creek Wetland Restoration	2012	2016	\$ 30,000.00	Elgin, IL	Ecosystem Restoration	Kane County Forest Preserve District 1996 South Kirk Road Suite 320 Geneva, IL 60134 630-232-5980
Blue Ridge Detention Basin	2013	2016	\$ 84,000.00	Algonquin, IL	Alternative Stormwater Installation	Village of Algonquin 110 Meyer Drive Algonquin, IL 60102 Michele Zimmerman: 847-658-2754
West Campus Stormwater Phase 2	2013	2016	\$ 151,700.00	Madison, WI	Alternative Stormwater Installation	Terra Engineering & Construction 2201 Vondron Road Madison, WI 53718-6795 Mike Heitman: 608-221-3501

Project	Yr Started	Completion	Contract Amt	Location	Type of Contract	Owner
Univ Research Park 2 Maintenance	2014	2017	\$ 23,600.00	Madison, WI	Maintenance	University Research Park 510 Charmany Drive Suite 250 Madison, WI 53719 Matt McConnell: 608-441-8040
Penny Healy Prairie Restoration	2013	2017	\$ 89,000.00	Barrington Hills, IL	Maintenance	Forest Preserve Dist. of Cook County 69 W. Washington Suite 2060 Chicago, IL 60602 Paul Sefcovic: 630-734-3333
University Research Park	2013	2017	\$ 316,300.00	Madison, WI	Alternative Stormwater Installation	Miron Construction Co., Inc. 1471 McMahon Drive P.O. Box 509 Neenah, WI 54956 920-969-7000
Drexel Town Square Wetland Park	2015	2017	\$ 612,000.00	Oak Creek, WI	Ecosystem Restoration	KM Development Corp 710 North Plankinton Avenue Suite 1100 Milwaukee, WI 53203 Fred Hampe: 414-274-2815
Sheboygan River Habitat Resto	2012	2017	\$ 855,000.00	Sheboygan, WI	Ecosystem Restoration	Lee & Ryan 1707 Melody Lane Greenfield, IN 46140 Dan Kolezar: 317-409-2703
Atkinson Rd WMB	2013	2018	\$ 36,000.00	Green Oaks, IL	Maintenance	Land and Water Resources, Inc. 9575 Higgins Rd Suite 901 Rosemont, IL 60018 John Ryan: 847-692-7170
Jackson Park Ecosystem Restoration	2014	2019	\$ 4,800,000.00	Chicago, IL	Ecosystem Restoration	USACE - Chicago District 231 S. LaSalle St 15th floor Chicago, IL 60606 Joe Grgic: 219-923-1763

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00 21 13 use	Instruction to Bidders
00 41 13	Bid Form
00 41 13 E-Form	Unit Price Bid Schedule ( <i>Excel format bid form available upon request to lrogers@releeinc.com</i> )
00 41 13.3	Tabulation of Subcontractors
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00 51 00	Notice of Award
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00 65 19.19	Statement of Surety Company
00 72 00_C-700_2007 REL Master	Standard General Conditions of the construction contract Industry Standard
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2004/2011 #	SPEC SECTION DESCRIPTION
<b>DRAWING DIVISION</b>	
1-10	

**00**

**DIVISION 00**

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**PROCUREMENT AND CONTRACTING REQUIREMENTS**

**SECTION 00 11 13  
ADVERTISEMENT FOR BIDS**

CITY OF MARINETTE  
1905 HALL AVENUE  
MARINETTE, WI 54143

Sealed bids for **Menekaunee Harbor Restoration Project, Contract number 3775-15-01** will be received by the **City of Marinette** at the **Marinette City Hall, Engineering Department, 1905 Hall Avenue, Marinette, WI 54143** until **May 27, 2015** at **11:00 a.m.** local time and shall include the following:

- 11 acres of various habitat restoration zones
- Various ecological habitat improvements, both in water and out.
- Live plantings—bare root and potted plants.
- Wildlife structures.
- Diverse native seeding.
- Wetland restoration.

Bids will be publicly opened and read aloud.

The owner encourages DBEs including MBEs and WBEs to submit bid proposals. The Bidding Documents, consisting of Advertisement for Bids, Instructions to Bidders, General Conditions, Supplementary Conditions, Bid Bond, Agreement, Statement of Surety Company, Contractor's Affidavit, Contractor's Release, Certificate of Substantial Completion, Drawings and Specifications, may be examined at the following location(s):

Blue Print Service Company 2350 West Pershing Street; Suite A Appleton, WI 54914 920-733-4539 Phone 920-733-1438 Fax bps@blueprintservic.com	Blue Print Service Company 425 Packerland Drive Green Bay, WI 54303-5418 920-494-4539 Phone 920-494-4538 Fax bps@blueprintservic.com	Robert E. Lee & Associates, Inc. 1250 Centennial Centre Boulevard Hobart, WI 54155 920-662-9641 Phone 920-662-9141 Fax
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The Contract shall be subject to Section 66.0903 of the Wisconsin Statutes per wage scales.

A copy of the State of Wisconsin Dept. of Workforce Development (DWD) prevailing Wage Rates and Davis Bacon General Decision No.WI20140015 for this project have been included. The Contractor shall pay the higher of the applicable wage rates. The Contractor and his subcontractors will be obligated not to discriminate in employment practices. The non-discrimination stipulations and wage rate determinations are included in the contract documents.

Each bid must be accompanied by a Bid Bond or certified check equivalent to 5% maximum proposal.

Prequalification of Bidders will be required 5 days prior to the bid opening.

No Bidder may withdraw his bid within 45 days after the actual date of the opening thereof.

The Owner reserves the right to reject any or all bids or any part of a bid. Further, the Owner reserves the right to waive any informality in any bid. The Owner reserves the right to increase or decrease the quantity of any item or portion of the work, or to omit portions of the work as may be deemed necessary

by the Owner; and the same shall in no way affect or make void the contract, except that the appropriate additions to or deductions from the contract price will be made.

**A pre-bid meeting will be held May 21, 2015 at the City of Marinette Park south of harbor, just north of 11 Ogden Street, Marinette, WI 54143, where a meeting and site tour will occur at 11:00 a.m. local time.**

Complete digital project bidding documents are available at [www.releeinc.com](http://www.releeinc.com) or [www.questcdn.com](http://www.questcdn.com). You may download the digital plan documents for a non-refundable fee of **\$35** by inputting Quest Project (**eBidDoc No.: 3882422**) on the website's Project Search page. Please contact QuestCDN.com at 952-233-1632 or [info@questcdninfo.com](mailto:info@questcdninfo.com) for assistance in free membership registration, downloading, and working with this digital project information. Contact Blue Print Service Company for more information on paper sets and payment options available. Downloaded plans are not scaleable, neither the owner nor the engineer shall be held responsible for the scale of downloaded plans. Only printed plans obtained from Blue Print Service Company shall be considered to be scaleable plans.

◆ Blue Print Service Company  
2350 West Pershing Street; Suite A  
Appleton, WI 54914  
920-733-4539 Phone  
920-733-1438 Fax  
[bps@blueprintservic.com](mailto:bps@blueprintservic.com) e-mail

◆ Blue Print Service Company  
425 Packerland Drive  
Green Bay, WI 54303-5418  
920-494-4539 Phone  
920-494-4538 Fax  
[bps@blueprintservic.com](mailto:bps@blueprintservic.com) e-mail

The letting of the work described herein is subject to the provisions of the Wisconsin State Statutes, in particular 62.15, 66.0901, and 66.0903.

Brian Miller, City Engineer  
City of Marinette Engineering Department

**SECTION 00 21 13  
INSTRUCTIONS TO BIDDERS**

**ARTICLE 1 - DEFINED TERMS**

1.01 Terms used in these Instructions to Bidders will have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof:

- A. Bidder--The individual or entity who submits a Bid directly to OWNER.
- B. Issuing Office--The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.
- C. Successful Bidder--The lowest responsible Bidder submitting a responsive Bid to whom OWNER (on the basis of OWNER's evaluation as hereinafter provided) makes an award.

**ARTICLE 2 - COPIES OF BIDDING DOCUMENTS**

2.01 Complete sets of the Bidding Documents in the number and for the sum, if any, stated in the Advertisement or Invitation to Bid may be obtained from the Issuing Office. Authorized sets of the Bidding Documents may be obtained digitally or by paper copy as directed in the Advertisement for Bids.

2.02 Complete sets of Bidding Documents must be used in preparing Bids; neither OWNER nor ENGINEER assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.03 OWNER and ENGINEER in making copies of Bidding Documents available on the above terms do so only for the purpose of obtaining Bids for the Work and do not confer a license or grant for any other use.

**ARTICLE 3 - QUALIFICATIONS OF BIDDERS**

3.01 The object of the request for the Qualification of Bidders is not to discourage bidding or make it difficult for qualified Bidders to file bids. Neither is it intended to discourage beginning contractors. It is intended to make it possible for the Owner to have exact information on financial ability, equipment, and experience in order to reduce the hazards involved in awarding contracts to parties apparently not qualified to perform them and to select those contractors qualified to properly complete the work proposed.

3.02 Prior action of the Owner in qualifying Contractors for other projects in previous calendar years will not be applicable to this project.

3.03 Owner's decision as to qualification of the Bidder shall be final.

3.04 Any contractor that has performed unsatisfactorily on a past project will not be qualified to bid.

3.05 Bidders shall be required to submit evidence that they have a practical knowledge of the particular work bid upon and that they have the financial resources to complete the proposed work.

3.06 Five days prior to the bid date, the contractor shall be required to submit the following information to the Engineer for consideration:

- A. The address and description of the Bidder's permanent place of business and name of state where incorporated.
- B. A list of the property and equipment available to the Bidder to evaluate if the Bidder can execute the work properly and expeditiously.
- C. The Bidder shall submit a compiled, reviewed or audited complete set of financial statements, including notes to the financial statements, prepared by an independent outside accountant for the most current fiscal year, and the previous fiscal year, that demonstrates the Bidder's financial ability to meet all of the obligations incidental to the work. The current fiscal year's statements shall be less than 16 months old.
- D. The Bidder's performance record, giving the description and location and contact information of similar projects constructed in a satisfactory manner by the Bidder.
- E. The technical experience of personnel guaranteed to be employed in responsible charge of the work, stating whether the personnel have or have not performed satisfactorily on other contracts of like nature and magnitude or comparable difficulty at similar rate of progress. All personnel scheduled to work on this project must be listed. Any change in personnel must be approved by the Engineer.
- F. Description of all safety related citations, all fatal injuries, and any contemplated or actual legal actions by any governmental agency resulting from or related to work performed by the Bidder, his agent, or subcontractor during the past 5 years.
- G. Executed copies of all minority-owned and small business certification statements.
- H. Such additional information as will assist the Owner in determining whether the Bidder is adequately prepared to fulfill the Contract.
- I. A list of contracts defaulted or resulting in lawsuits in the previous five (5) years

#### **ARTICLE 4 - EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE**

##### 4.01 Subsurface and Physical Conditions

- A. The Supplementary Conditions may identify:
  - 1. Those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Bidding Documents.
  - 2. Those drawings of physical conditions in or relating to existing surface and subsurface structures at or contiguous to the Site (except Underground Facilities) that ENGINEER has used in preparing the Bidding Documents.
- B. Copies of reports and drawings referenced in paragraph 4.01.A, if any, will be made available by OWNER to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the "technical data" contained therein upon which Bidder is entitled to rely as provided in paragraph 4.02 of the General Conditions has been identified and established in

paragraph 4.02 of the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any “technical data” or any other data, interpretations, opinions or information contained in such reports or shown or indicated in such drawings. Downloaded plans are not scaleable, neither the owner nor the engineer shall be held responsible for the scale of downloaded plans. Only printed plans obtained from Blue Print Service Company shall be considered to be scaleable plans.

#### 4.02 Underground Facilities

- A. Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site is based upon information and data furnished to OWNER and ENGINEER by owners of such Underground Facilities, including OWNER, or others.

#### 4.03 Hazardous Environmental Condition

- A. The Supplementary Conditions identify those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that ENGINEER has used in preparing the Bidding Documents.
- B. Copies of reports and drawings referenced in paragraph 4.03.A will be made available by OWNER to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the “technical data” contained therein upon which Bidder is entitled to rely as provided in paragraph 4.06 of the General Conditions has been identified and established in paragraph 4.06 of the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any “technical data” or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

4.04 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated conditions appear in paragraphs 4.02, 4.03, and 4.04 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work appear in paragraph 4.06 of the General Conditions.

4.05 On request, OWNER will provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies. Bidder shall comply with all applicable Laws and Regulations relative to excavation and utility locates.

- 4.06 A. Reference is made to Article 7 of the Supplementary Conditions for the identification of the general nature of other work that is to be performed at the Site by OWNER or others (such as utilities and other prime contractors) that relates to the Work for contemplated by these bidding documents (per 2007 version). On request, OWNER will provide to each Bidder for examination access to or copies of Contract Documents (other than portions thereof related to price) for such other work.

- 4.06 B. Paragraph 6.13.C of the General Conditions indicates that if an Owner safety program exists, it will be noted in the Supplementary Conditions.
- 4.07 It is the responsibility of each Bidder before submitting a Bid to:
- A. Examine and carefully study the Bidding Documents, including any Addenda and the other related data identified in the Bidding Documents;
  - B. Visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;
  - C. Become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, or performance of the Work;
  - D. Carefully study all reports of explorations and tests of subsurface conditions, if any, at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures, if any, at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in paragraph 4.02 of the General Conditions, and carefully study all reports and drawings of a Hazardous Environmental Condition, if any, at the Site which have been identified in the Supplementary Conditions as provided in paragraph 4.06 of the General Conditions;
  - E. Consider the information known to Bidder; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding 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 Bidder, including applying any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs;
  - F. Agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times and in accordance with the other terms and conditions of the Bidding Documents;
  - G. Become aware of the general nature of the work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents;
  - H. Correlate the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents;
  - I. Promptly give ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by ENGINEER is acceptable to Bidder; and
  - J. Determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

4.08 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by ENGINEER are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

## **ARTICLE 5 - PRE-BID CONFERENCE**

5.01 A pre-Bid conference will be held at 11:00 a.m. local time on May 21, 2015 at City of Marinette Park, south of the harbor, just north of 11 Ogden Street, Marinette, WI 54143. Representatives of OWNER and ENGINEER will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference. ENGINEER will transmit to all prospective Bidders of record such Addenda as ENGINEER considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

## **ARTICLE 6 - SITE AND OTHER AREAS**

6.01 The Site is identified in the Bidding Documents. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by Owner unless otherwise provided in the Bidding Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by Contractor.

## **ARTICLE 7 - INTERPRETATIONS AND ADDENDA**

7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to ENGINEER in writing. Interpretations or clarifications considered necessary by ENGINEER in response to such questions will be issued by Addenda e-mailed or faxed to all parties recorded by ENGINEER as having received the Bidding Documents. Questions received less than five days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

Direct all questions to the project contact, Ryan Trzinski, P.E., at the office of the engineer at 920-662-9641. Questions may also be e-mailed to Ryan Trzinski, P.E. at [rtrzinski@releeinc.com](mailto:rtrzinski@releeinc.com).

7.02 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by OWNER or ENGINEER.

## **ARTICLE 8 - BID SECURITY**

8.01 A Bid must be accompanied by Bid security made payable to OWNER in an amount of 5% of Bidder's maximum Bid price and in the form of a certified or bank check or a Bid Bond [on the form attached] issued by a surety meeting the requirements of paragraphs 5.01 and 5.02 of the General Conditions.

8.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice

of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited. Such forfeiture shall be Owner's exclusive remedy if Bidder defaults. The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the Agreement or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.

8.03 Bid security of other Bidders whom OWNER believes do not have a reasonable chance of receiving the award will be returned within seven days after the Bid opening.

## **ARTICLE 9 - CONTRACT TIMES**

9.01 The number of days within which, or the dates by which, [Milestones are to be achieved and] the Work is to be substantially completed and ready for final payment are set forth in the Agreement.

## **ARTICLE 10 - LIQUIDATED DAMAGES**

10.01 Provisions for liquidated damages, if any, are set forth in the Agreement.

## **ARTICLE 11 - SUBSTITUTE AND "OR-EQUAL" ITEMS**

11.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or "or-equal" items. Whenever it is specified or described in the Bidding Documents that a substitute or "or-equal" item of material or equipment may be furnished or used by CONTRACTOR if acceptable to ENGINEER, application for such acceptance will not be considered by ENGINEER until after the Effective Date of the Agreement.

## **ARTICLE 12 - SUBCONTRACTORS, SUPPLIERS, AND OTHERS**

12.01 If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, individuals, or entities to be submitted to OWNER in advance of a specified date prior to the Effective Date of the Agreement, the apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to OWNER a list of all such Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by OWNER. If OWNER or ENGINEER, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, OWNER may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, in which case apparent Successful Bidder shall submit an acceptable substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and OWNER may consider such price adjustment in evaluating Bids and making the contract award.

12.02 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, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which OWNER or ENGINEER makes no written objection prior to the giving of the Notice of Award will be

deemed acceptable to OWNER and ENGINEER subject to revocation of such acceptance after the Effective Date of the Agreement as provided in paragraph 6.06 of the General Conditions.

12.03 CONTRACTOR shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom CONTRACTOR has reasonable objection.

## **ARTICLE 13 - PREPARATION OF BID**

13.01 The Bid form is included with the Bidding Documents. Additional copies may be obtained from the office of the Engineer.

13.02 All blanks on the Bid form shall be completed in ink and the Bid signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each [section, Bid item, alternative, adjustment unit price item, and unit price item] listed therein, or the words “No Bid,” “No Change,” or “Not Applicable” entered.

13.03 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.

13.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown below the signature.

13.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown below the signature.

13.06 A Bid by an individual shall show the Bidder’s name and official address.

13.07 A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid form. The official address of the joint venture must be shown below the signature.

13.08 All names shall be typed or printed in ink below the signatures.

13.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid form.

13.10 The address and telephone number for communications regarding the Bid shall be shown.

13.11 The Bid shall contain evidence of Bidder’s authority and qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the Contract. Bidder’s state contractor license number for the state of the Project, if any, shall also be shown on the Bid form.

## **ARTICLE 14 - BASIS OF BID; EVALUATION OF BIDS**

14.01 Unit Price

- A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in Section 00 41 13, Bid Form.
- B. The total of all estimated prices will be determined as the sum of the products of the estimated quantity of each item and the unit price Bid for the item. The final quantities and Contract Price will be determined in accordance with paragraph 11.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

14.02 The Bid price shall include such amounts as the Bidder deems proper for overhead and profit on account of cash allowances, if any, named in the Contract Documents as provided in paragraph 11.02 of the General Conditions.

## **ARTICLE 15 - SUBMITTAL OF BID**

15.01 Bids shall be made on the blank forms prepared by the Owner. The Bid is to be completed and submitted with the Bid security and the following data:

- A. Required bid security in the form of Section 00 43 13, Bid Bond or certified check.
- B. Section 00 41 13, Bid Form
- C. Section 00 41 13.3, Tabulation of Subcontractors

15.02 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the advertisement or invitation to Bid and shall be enclosed in an opaque sealed envelope plainly marked with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate envelope plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid shall be addressed to OWNER'S OFFICE or as stated in Section 00 41 13, Bid Form.

## **ARTICLE 16 - MODIFICATION AND WITHDRAWAL OF BID**

16.01 A Bid may be modified or withdrawn by an appropriate document duly executed in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.

16.02 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with OWNER and promptly thereafter demonstrates to the reasonable satisfaction of OWNER that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

## **ARTICLE 17 - OPENING OF BIDS**

17.01 Bids will be received and opened at the time and place indicated in the advertisement or invitation to Bid, and unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base

Bids and major alternates, if any, will be made available to Bidders after the opening of Bids on the “Bid Results or Project Bid Information” page at [www.releeinc.com](http://www.releeinc.com).

## **ARTICLE 18 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE**

18.01 All Bids will remain subject to acceptance for the period of time stated in the Bid form, but OWNER may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

## **ARTICLE 19 - AWARD OF CONTRACT**

19.01 OWNER reserves the right to reject any or all Bids, including without limitation, nonconforming, non-responsive, unbalanced, or conditional Bids. OWNER further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to be non-responsible. OWNER may also reject the Bid of any Bidder if OWNER believes that it would not be in the best interest of the Project to make an award to that Bidder. OWNER also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder.

19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

19.03 In evaluating Bids, OWNER will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.

19.04 In evaluating Bidders, OWNER will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the Supplementary Conditions.

19.05 OWNER may conduct such investigations as OWNER deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities to perform the Work in accordance with the Contract Documents.

19.06 If the contract is to be awarded by the Owner, it will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or “or-equal” items, to the responsible Bidder whose bid, conforming with all the material terms and conditions of the Instructions to Bidders, is the lowest, price and other factors considered.

## **ARTICLE 20 - CONTRACT SECURITY AND INSURANCE**

20.01 Article 5 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth OWNER’s requirements as to performance and payment Bonds and insurance. When the Successful Bidder delivers the executed Agreement to OWNER, it must be accompanied by such Bonds.

## **ARTICLE 21 - SIGNING OF AGREEMENT**

21.01 When OWNER gives a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement with the other Contract Documents which are

identified in the Agreement as attached thereto. Within 15 days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to OWNER. Within ten days thereafter, OWNER shall deliver one fully signed counterpart to Successful Bidder with a complete set of the Drawings with appropriate identification.

- END OF SECTION -

**SECTION 00 41 13  
BID FORM**

**PROJECT IDENTIFICATION:**

**Client Name: City of Marinette**  
**Project Name: Menekaunee Harbor Restoration Project**  
**Contract No.: 3775-15-01**

**CONTRACT IDENTIFICATION AND NUMBER:**

**Contract No.: 3775-15-01**  
**Client Name: City of Marinette**  
**Project Name: Menekaunee Harbor Restoration Project**

**THIS BID IS SUBMITTED TO:**

Personal Delivery before Bid Date:  
City of Marinette—City Hall  
1905 Hall Avenue  
Marinette, WI 54143

Mail Delivery before Bid Date:  
City of Marinette  
1905 Hall Avenue  
Marinette, WI 54143

- 1.01 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with OWNER in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.
- 2.01 Bidder accepts all of the terms and conditions of the Advertisement or Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. The Bid will remain subject to acceptance for 45 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of OWNER.
- 3.01 In submitting this Bid, Bidder represents, as set forth in the Agreement, that:
- A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of all which is hereby acknowledged.

<u>Addendum No.</u>	<u>Addendum Date</u>
<u>1</u>	<u>5/13/15</u>
<u>2</u>	<u>5/22/15</u>
<u> </u>	<u> </u>

- B. Bidder has visited the Site 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. Bidder is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress and performance of the Work.

- D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in paragraph 4.02 of the General Conditions, and (2) reports and drawings of a Hazardous Environmental Condition, if any, which has been identified in the Supplementary Conditions as provided in paragraph 4.06 of the General Conditions.
  - E. Bidder has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto.
  - F. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.
  - G. Bidder 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 Bidding Documents.
  - H. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.
  - I. Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by ENGINEER is acceptable to Bidder.
  - J. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.
- 4.01 Bidder further represents that this Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any individual or entity to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

Three Hundred Ninety-one Thousand Five Hundred Thirty-Three and <sup>55</sup>/<sub>100</sub> Dollars (words)

\$391,533.55 (figures)

Refer to unit price bid schedule.

Unit Prices have been computed in accordance with paragraph 11.03.B of the General Conditions.

Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities provided, determined as provided in the Contract Documents.

6.01 Bidder agrees that the Work will be substantially completed and completed and ready for final payment in accordance with paragraph 14.07.B of the General Conditions on or before the dates or within the number of calendar days indicated in Section 00 52 00, Standard Form of Agreement between Owner and Contractor.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the times specified above, which shall be stated in the Agreement.

7.01 The following documents are attached to and made a condition of this Bid:

- A. Required Bid security in the form of bid bond or certified check. (Along with Section 00 43 13, Bid Bond)
- B. Section 00 41 13, Bid Form.
- C. Section 00 41 13.3, Tabulation of Subcontractors.

8.01 The terms used in this Bid with initial capital letters have the meanings indicated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

SUBMITTED on May 26, 2015.

State Contractor License No. A026600 (If applicable)

If Bidder is:

An Individual

Name (typed or printed): \_\_\_\_\_

By: \_\_\_\_\_ (SEAL)

(Individual's signature)

Doing business as: \_\_\_\_\_

Business address: \_\_\_\_\_

Phone No.: \_\_\_\_\_ FAX No.: \_\_\_\_\_

A Partnership

Partnership Name: \_\_\_\_\_ (SEAL)

By: \_\_\_\_\_

(Signature of general partner -- attach evidence of authority to sign)

Name (typed or printed): \_\_\_\_\_

Business address: \_\_\_\_\_

Phone No.: \_\_\_\_\_ FAX No.: \_\_\_\_\_

A Corporation

Corporation Name: Applied Ecological Services (SEAL)

State of Incorporation: Wisconsin

Type (General Business, Professional, Service, Limited Liability): General Business

By: \_\_\_\_\_

(Signature -- attach evidence of authority to sign)

Name (typed or printed): Steve Apfelbaum

Title: President (CORPORATE SEAL)

Attest Dan Spethmann  
(Signature of Corporate Secretary)

Business address: 17921 W. Smith Road  
Brodhead, WI, 53520

Phone No.: 608-897-8641 FAX No.: 608-897-8486

Date of Qualification to do business is 1/5/88

A Joint Venture

Joint Venturer Name: \_\_\_\_\_ (SEAL)

By: \_\_\_\_\_  
*(Signature of joint venture partner -- attach evidence of authority to sign)*

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_

Business address: \_\_\_\_\_

Phone No.: \_\_\_\_\_ FAX No.: \_\_\_\_\_

Joint Venturer Name: \_\_\_\_\_ (SEAL)

By: \_\_\_\_\_  
*(Signature -- attach evidence of authority to sign)*

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_

Business address: \_\_\_\_\_

Phone No.: \_\_\_\_\_ FAX No.: \_\_\_\_\_

Phone and FAX Number, and Address for receipt of official communications:

\_\_\_\_\_  
\_\_\_\_\_

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)



**Robert E. Lee & Associates, Inc.**  
Engineering, Surveying and Environmental Services

**Green Bay Office**  
1250 Centennial Centre Blvd  
Hobart, WI 54155-8995  
PHONE: 920-662-9641  
FAX: 920-662-9141  
WEBSITE: www.releeinc.com

May 13, 2015

**CITY OF MARINETTE  
MARINETTE COUNTY, WISCONSIN**

**ADDENDUM NO. 1  
MENEKAUNEE HARBOR RESTORATION PROJECT  
CONTRACT 3775-15-01**

**TO: Prospective Bidders of Contract 3775-15-01**  
**FROM: Robert E. Lee & Associates, Inc.**  
**RE: Specification change**

Notice is hereby given that the contract documents for the above-referenced project are amended as hereinafter set forth:

**SPECIFICATIONS**

- Section 00 11 13, Advertisement for Bids, delete the entire 2<sup>nd</sup> paragraph in its entirety. The paragraph begins as follows, .....“This procurement is subject to the Grantee’s policy regarding the increased use of small, minority, and women’s businesses...”

This addendum shall be attached to and form a part of these contract documents. The receipt and examination of this addendum and inclusion as a part of the contract documents shall be acknowledged by the bidder in the space provided in the Bid Form on page 00 41 13-1.

Sincerely,

ROBERT E. LEE & ASSOCIATES, INC.

Jared G. Schmidt, P.E., Principal  
Civil/Municipal Services Manager

JGS/NJM

CC/ENC.: Laura Pavelski, CAD Manager, REL  
Jim Westerman, Survey Asst. Manager, REL

Accepted this 26 day of May, 2015.

Signature

Applied Ecological Services  
Name of Firm



**Robert E. Lee & Associates, Inc.**  
Engineering, Surveying and Environmental Services

**Green Bay Office**  
1250 Centennial Centre Blvd  
Hobart, WI 54155-8995  
PHONE: 920-662-9641  
WEBSITE: [www.releeinc.com](http://www.releeinc.com)

May 22, 2015

**CITY OF MARINETTE  
MARINETTE COUNTY, WISCONSIN  
ADDENDUM NO.2  
MENEKAUNEE HARBOR RESTORATION PROJECT  
CONTRACT 3775-15-01**

**TO: Prospective Bidders of Contract 3775-15-01**  
**FROM: Robert E. Lee & Associates, Inc.**  
**RE: Specification and Plan Changes**

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Notice is hereby given that the contract documents for the above-referenced project are amended as hereinafter set forth:

**SPECIFICATIONS**

1. Section 00 41 13, Unit Price Bid Schedule, remove and replace with the attached revised section.
  - Revised Bid Items: 4, added 4a, 5, 6, 8, 9, 10, 25, 27, added 27a, 27b, 27c, 45, and 46.
  - An electronic copy is available of the Unit price Bid Schedule by e-mailing Lori Rogers at [lrogers@releeinc.com](mailto:lrogers@releeinc.com).
2. Section 00 52 00, Standard Form of Agreement, 4.02 A., in writing change the *Final Completion and Payment Date* to November 18, 2016.
3. Section 01 11 00, Special Provisions, 1.04, add the following subparagraphs:
  - D. Sign board materials, design, delivery, installation, and all associated appurtenances are incidental to the mobilization bid item.
  - E. Alternate bids will be awarded by the City based on available funding.
  - F. Site debris will be paid by the Cubic Yard of material hauled off site. Truck measurement or an approved method of measurement determined by the Engineer and Contractor can be used to quantify the material removed.
  - G. The *Available Project Information Section Tab*, the Habitat Restoration Plan includes additional information to supplement Specification Section 32 90 10, Native Landscaping and 32 95 00, Habitat Structures.
4. Section 01 32 33, Construction Photographs, delete 1.04 B and replace with the following:
  - B. The digital footnote file name shall include the date, name of photographer, name of structure, direction of view, and location on each photo.
5. Section 01 32 33, Construction Photographs, delete 1.04 C and replace with the following:
  - C. The Contractor shall provide two copies of each photo disc in .jpg format. The project name and project number shall be listed on each disc. A release of rights statement shall be signed and dated releasing any and all rights to the photos, and granting the City of Marinette and Wisconsin Department of Natural Resources (WDNR) all rights to the photos.
6. Section 01 41 00, Regulatory Requirements, delete 1.05 in its entirety.

May 22, 2015

Addendum No. 2 - Menekaunee Harbor Restoration Project - Contract 3775-15-01

Page 2

7. Section 32 90 10, Native Landscaping, remove and replace with attached revised section.
  - Revised 2.01 H, *Emergent/Floating-Leaved Aquatic Planting Zone* table—number of plans required column has been revised;
  - Revised 4.12 *Maintenance During Warranty Period* new subparagraph C, Performance Standards (1-3) have been added.
8. Section 32 95 00, Habitat Structures, 2.05, add the following subparagraph:
  - D. Imported material from an off-site location must be “disease-free” materials.
9. Add the following report after the tab labeled, *Available Project Information*, “Habitat Restoration Plan”, prepared by James Havel, NES Ecological Services, dated May 11, 2015.

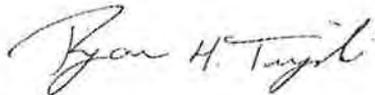
#### PLANS

10. Plan Sheet 3, remove and replace with the attached Plan Sheet 3R.
11. Add the attached Plan Sheet 11, Sign Plate Detail.

This addendum shall be attached to and form a part of these contract documents. The receipt and examination of this addendum and inclusion as a part of the contract documents shall be acknowledged by the bidder in the space provided in the Bid Form on page 00 41 13-1.

Sincerely,

ROBERT E. LEE & ASSOCIATES, INC.



Ryan H. Trzinski, P.E.,  
Project Manager

RHT/NJM

CC/ENC.: Laura Pavelski, CAD Manager, REL  
Jim Westerman, Survey Asst. Manager, REL

Accepted this 26 day of May, 2015.

Signature

Applied Ecological Services  
Name of Firm

## **LABELED TAB – BID SCHEDULE**

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**\*Place labeled tab before Unit price bid schedule (spreadsheet) \_Section 00 41 13.**

UNIT PRICE BID SCHEDULE					
OWNER:		CITY OF MARINETTE			
PROJECT:		MENEKAUNEE HARBOR RESTORATION PROJECT			
CONTRACT:		3775-15-01			
BID DATE:		5/27/2015			
ENGINEERS:		ROBERT E. LEE & ASSOCIATES, INC.			
				APPLIED ECOLOGICAL SERVICES	
				Brodhead, Wisconsin	
Item	Unit	Qty.	Unit Price	Total Price	
<b>RESTORATION ZONES</b>					
1	Mobilization to include all work and operations necessary to move personnel, equipment, supplies, and incidentals to the project site and to establish all of the contractor's offices, buildings, sanitary accommodations, and other facilities necessary to work on the project. It also covers all other work and operations whose performance is required, or for costs necessarily incurred before beginning work on various items on the project site and demobilization costs, for lump sum of:	LS	1	\$17,050.00	\$17,050.00
2	Enhancement zone open water site preparation per plans and specifications, for the unit price of:	ACRE	0.64	\$1,895.00	\$1,212.80
3	Install submergent aquatic plantings, per plans and specifications, for the unit price of:	EACH	1,050	\$3.12	\$3,276.00
4	Emergent aquatic - wild rice site preparation per plans and specifications, for the unit price of:	ACRE	1.13	\$1,895.00	\$2,141.35
4a	Emergent aquatic - wild rice seeding per plans and specifications, for the unit price of:	ACRE	1.13	\$2,107.00	\$2,380.91
5	Emergent aquatic site preparation per plans specifications, for the unit price of:	ACRE	0.99	\$1,895.00	\$1,876.05
6	Install emergent aquatic plantings, per plans and specifications, for the unit price of:	EACH	11,000	\$4.00	\$44,000.00
7	Install erosion blanket - C125 BN, in emergent aquatic zone along the southern harbor limits, per plans and specifications, for the unit price of:	S.Y.	300	\$4.00	\$1,200.00
8	Install goose fencing, per plans and specifications, for the unit price of:	L.F.	1,300	\$3.23	\$4,199.00
9	Install carp fencing, per plans and specifications, for the unit price of:	L.F.	1,800	\$7.00	\$12,600.00
10	Northern sedge meadow rework zone site preparation and seeding, per plans and specifications, for the unit price of:	ACRE	0.67	\$4,578.00	\$3,067.26
11	Northern sedge meadow enhancement zone site preparation and seeding, per plans and specifications, for the unit price of:	ACRE	0.81	\$4,931.00	\$3,994.11
12	Install northern sedge meadow plants, per plans and specifications, for the unit price of:	EACH	1,200	\$5.44	\$6,528.00
13	Shrub Carr rework zone site preparation and seeding, per plans and specifications, for the unit price of:	ACRE	0.69	\$5,119.00	\$3,532.11
14	Shrub Carr enhancement zone site preparation and seeding, per plans and specifications, for the unit price of:	ACRE	0.17	\$5,472.00	\$930.24
15	Install shrub carr plants, per plans and specifications, for the unit price of:	EACH	900	\$5.49	\$4,941.00
16	Install shrub carr trees and shrubs, including protectors, per plans and specifications, for the unit price of:	EACH	400	\$48.00	\$19,200.00
17	Install shrub carr live stakes, per plans and specifications, for the unit price of:	EACH	400	\$6.46	\$2,584.00
18	Wet mesic forest rework zone site preparation and seeding, per plans and specifications, for the unit price of:	ACRE	1.26	\$5,756.00	\$7,252.56
19	Wet mesic forest enhancement zone site preparation and seeding, per plans and specifications, for the unit price of:	ACRE	0.34	\$6,109.00	\$2,077.06
20	Install wet mesic forest plants, per plans and specifications, for the unit price of:	EACH	850	\$6.54	\$5,559.00
21	Install wet mesic forest trees and shrubs, including protectors, per plans and specifications, for the unit price of:	EACH	1,000	\$42.50	\$42,500.00
22	Mesic to wet mesic prairie rework zone site preparation and seeding, per plans and specifications, for the unit price of:	ACRE	0.34	\$4,698.00	\$1,597.32
23	Prairie site preparation and seeding, per plans and specifications, for the unit price of:	ACRE	0.31	\$15,438.00	\$4,785.78
24	Install erosion blanket - S 75 BN, in prairie zone along the southern portion of the harbor limits, per plans and specifications, for the unit price of:	S.Y.	1,500	\$1.84	\$2,760.00
25	Install green snow fencing along both sides existing walking trail within the construction limits with 8-foot post spacing, including, delivery, installation, maintenance, removal, and all appurtenances to install fencing, for the unit price of:	L.F.	1,400	\$2.36	\$3,304.00
26	Prepare maintenance plan according to specifications, for the unit price of:	L.S.	1	\$1,650.00	\$1,650.00
27	Conduct 1 year of maintenance activities, November 2015 through November 2016 per specifications and approved plan, for the unit price of:	L.S.	1	\$17,077.00	\$17,077.00
27a	Install screened topsoil, 100% passing the 2-inch sieve, free of lumps, stones, brush, roots, weeds, and extraneous matter harmful to plant growth, including delivery, placing, spreading, and grading, for the unit price of:	C.Y.	500	\$58.80	\$29,400.00
27b	Site debris removal to include the gathering, removal, and disposal of site debris off-site at an approved location, including but not limited to, wood legs, wood planks, concrete blocks, concrete pavers, or site debris unsuitable for vegetative growth, for the unit price of:	C.Y.	500	\$39.95	\$19,975.00
27c	Wood chip path, install 6-foot wide wood mulch path, including any grading, shaping, and placement of 4-inch thick wood chip mulch, for the unit price of:	L.F.	100	\$14.50	\$1,450.00
<b>Total Restoration Zones, Items 1-27c</b>					<b>\$274,100.55</b>
<b>HABITAT IMPROVEMENT STRUCTURES</b>					
28	Install bat houses per plans and specifications, for the unit price of:	EA	2	\$777.00	\$1,554.00
29	Install brush piles per plans and specifications, for the unit price of:	EA	3	\$3,361.00	\$10,083.00
30	Install fish sticks per plans and specifications, for the unit price of:	EA	5	\$6,987.00	\$34,935.00
31	Install log structures per plans and specifications, for the unit price of:	EA	6	\$5,634.00	\$33,804.00
32	Install half log structures per plans and specifications, for the unit price of:	EA	4	\$2,354.00	\$9,416.00
33	Install rock pile in water per plans and specifications, for the unit price of:	EA	1	\$6,994.00	\$6,994.00
34	Install rock pile out of water per plans and specifications, for the unit price of:	EA	2	\$807.00	\$1,614.00
35	Install screech owl nest box per plans and specifications, for the unit price of:	EA	2	\$440.00	\$880.00
36	Install snag tree per plans and specifications, for the unit price of:	EA	5	\$285.00	\$1,425.00
37	Install forester's tern nesting platform per plans and specifications, for the unit price of:	EA	10	\$611.00	\$6,110.00
38	Install tree swallow nest box per plans and specifications, for the unit price of:	EA	7	\$317.00	\$2,219.00
39	Install wood duck box per plans and specifications, for the unit price of:	EA	3	\$411.00	\$1,233.00
40	Install woody debris per plans and specifications, for the unit price of:	EA	1	\$1,139.00	\$1,139.00

UNIT PRICE BID SCHEDULE					
OWNER:		CITY OF MARINETTE			
PROJECT:		MENEKAUNEE HARBOR RESTORATION PROJECT			
CONTRACT:		3775-15-01			
BID DATE:		5/27/2015			
ENGINEERS:		ROBERT E. LEE & ASSOCIATES, INC.			
				APPLIED ECOLOGICAL SERVICES	
				<i>Brodhead, Wisconsin</i>	
Item		Unit	Qty.	Unit Price	Total Price
<b>TOTAL Habitat Improvement Structures, Items 28-40</b>					
					<b>\$111,406.00</b>
<b>EROSION CONTROL (as needed during construction)</b>					
41	silt fence, installed and maintained, for the unit price of:	L.F.	500	\$3.25	\$1,625.00
42	tracking pads, furnished, installed, and maintained, for the unit price of:	UNIT	1	\$2,047.00	\$2,047.00
43	inlet protection, installed, maintained, and removed when 70% vegetation is established, for the unit price of:	UNIT	1	\$370.00	\$370.00
44	ditch checks furnished, installed, and maintained, for the unit price of:	UNIT	5	\$397.00	\$1,985.00
<b>TOTAL Erosion Control, Items 41-44</b>					
					<b>\$6,027.00</b>
<b>TOTAL CONTRACT 3775-15-01, Items 1-44</b>					
					<b>\$391,533.55</b>
<b>ALTERNATE BID ITEMS</b>					
45	conduct 1-year of maintenance activities, November 2016 through November 2017, per specifications and approved plan, for the unit price of:	L.S.	1	\$11,874.00	\$11,874.00
46	conduct 1 year of maintenance activites, November 2017 through November 2018, per specifications and approved plan, for the unit price of:	L.S.	1	\$10,627.00	\$10,627.00

**SECTION 00 41 13.3**

**TABULATION OF SUBCONTRACTORS**

The following subcontractors will be utilized for portions of the project work, only one subcontractor may be included for each classification of work. Each classification shall be filled in with either the subcontractors name or 'Prime Contractor' if the Prime Contractor will perform the work. Changes shall not be made subsequent to the bid unless the change(s) is requested in writing and is approved by the Owner.

**MENKAUNEE HARBOR RESTORATION PROJECT  
CONTRACT NO. 3775-15-01**

Subcontractor	Classification of Work	Estimated Dollar Amount
n/a	Landscaping	
n/a	Trucking	

**SECTION 00 43 13  
BID BOND**

**BIDDER** (Name and Address):

Applied Ecological Services, Inc.  
17921 Smith Road  
Brodhead, WI 53520

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

The Hanover Insurance Company  
440 Lincoln Street  
Worcester, MA 01653

**OWNER** (Name and Address):

City of Marinette—City Hall  
1905 Hall Avenue  
Marinette, WI 54143

**BID**

BID DUE DATE: May 27, 2015 at 11:00 a.m.  
PROJECT (Brief Description Including Location):  
Menekaunee Harbor Restoration Project; Contract No. 3775-15-01

**BOND**

BOND NUMBER: HI00211  
DATE (Not later than Bid due date): May 21, 2015  
PENAL SUM: Five Percent of Amount Bid 5%  
(Words) (Figures)

IN WITNESS WHEREOF, Surety and Bidder, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Bid Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

**BIDDER**

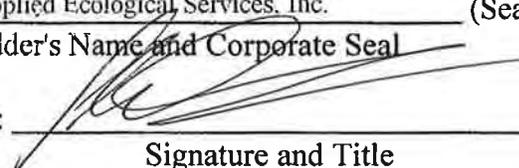
**SURETY**

Applied Ecological Services, Inc. (Seal)

The Hanover Insurance Company (Seal)

Bidder's Name and Corporate Seal

Surety's Name and Corporate Seal

By:  Signature and Title

By:  Signature and Title Robert Downey, Attorney-in-Fact  
(Attach Power of Attorney)

Attest: Dan Sathmann Sec. Signature and Title

Attest: Karla K. Heffron Signature and Title  
witness

- Note: (1) Above addresses are to be used for giving required notice.  
(2) Any singular reference to Bidder, Surety, OWNER or other party shall be considered plural where applicable.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to OWNER upon default of Bidder the penal sum set forth on the face of this Bond.

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 by 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 and 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 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 or 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.

**OWNER'S REPRESENTATIVES:**

Robert E. Lee & Associates, Inc.  
1250 Centennial Centre Boulevard  
Hobart, WI 54155  
(920) 662-9641  
(920) 662-9141 (Fax)

**AGENT OR BROKER:**

Name: J. Ryan Bonding, Inc.

Address: 2920 Enloe Street, Hudson, WI 54016

Phone: 800-535-0006

Fax: 800-501-0989

THE HANOVER INSURANCE COMPANY  
MASSACHUSETTS BAY INSURANCE COMPANY  
CITIZENS INSURANCE COMPANY OF AMERICA

POWERS OF ATTORNEY  
CERTIFIED COPY

KNOW ALL MEN BY THESE PRESENTS: That THE HANOVER INSURANCE COMPANY and MASSACHUSETTS BAY INSURANCE COMPANY, both being corporations organized and existing under the laws of the State of New Hampshire, and CITIZENS INSURANCE COMPANY OF AMERICA, a corporation organized and existing under the laws of the State of Michigan, do hereby constitute and appoint

**Michael J. Douglas, Chris Steinagel, Christopher M. Kemp, Robert Downey and/or Connie Smith**

of **Hudson, WI** and each is a true and lawful Attorney(s)-in-fact to sign, execute, seal, acknowledge and deliver for, and on its behalf, and as its act and deed any place within the United States, or, if the following line be filled in, only within the area therein designated any and all bonds, recognizances, undertakings, contracts of indemnity or other writings obligatory in the nature thereof, as follows:

**Any such obligations in the United States, not to exceed Twenty Million and No/100 (\$20,000,000) in any single instance**

and said companies hereby ratify and confirm all and whatsoever said Attorney(s)-in-fact may lawfully do in the premises by virtue of these presents. These appointments are made under and by authority of the following Resolution passed by the Board of Directors of said Companies which resolutions are still in effect:

"RESOLVED, That the President or any Vice President, in conjunction with any Vice President, be and they are hereby authorized and empowered to appoint Attorneys-in-fact of the Company, in its name and as its acts, to execute and acknowledge for and on its behalf as Surety any and all bonds, recognizances, contracts of indemnity, waivers of citation and all other writings obligatory in the nature thereof, with power to attach thereto the seal of the Company. Any such writings so executed by such Attorneys-in-fact shall be as binding upon the Company as if they had been duly executed and acknowledged by the regularly elected officers of the Company in their own proper persons" (Adopted October 7, 1981 - The Hanover Insurance Company; Adopted April 14, 1982 - Massachusetts Bay Insurance Company; Adopted September 7, 2001 - Citizens Insurance Company of America)

IN WITNESS WHEREOF, THE HANOVER INSURANCE COMPANY, MASSACHUSETTS BAY INSURANCE COMPANY and CITIZENS INSURANCE COMPANY OF AMERICA have caused these presents to be sealed with their respective corporate seals, duly attested by two Vice Presidents, this **20th** day of **December 2011**.



THE HANOVER INSURANCE COMPANY  
MASSACHUSETTS BAY INSURANCE COMPANY  
CITIZENS INSURANCE COMPANY OF AMERICA

*Robert Thomas*  
Robert Thomas, Vice President

*Joe Brenstrom*  
Joe Brenstrom, Vice President

THE COMMONWEALTH OF MASSACHUSETTS )  
COUNTY OF WORCESTER ) ss.

On this **20th** day of **December 2011** before me came the above named Vice Presidents of The Hanover Insurance Company, Massachusetts Bay Insurance Company and Citizens Insurance Company of America, to me personally known to be the individuals and officers described herein, and acknowledged that the seals affixed to the preceding instrument are the corporate seals of The Hanover Insurance Company, Massachusetts Bay Insurance Company and Citizens Insurance Company of America, respectively, and that the said corporate seals and their signatures as officers were duly affixed and subscribed to said instrument by the authority and direction of said Corporations.



BARBARA A. GARLICK  
Notary Public  
Commonwealth of Massachusetts  
My Commission Expires Sept. 21, 2018

*Barbara A. Garlick*

Barbara A. Garlick, Notary Public  
My Commission Expires September 21, 2018

I, the undersigned Vice President of The Hanover Insurance Company, Massachusetts Bay Insurance Company and Citizens Insurance Company of America, hereby certify that the above and foregoing is a full, true and correct copy of the Original Power of Attorney issued by said Companies, and do hereby further certify that the said Powers of Attorney are still in force and effect.

This Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of The Hanover Insurance Company, Massachusetts Bay Insurance Company and Citizens Insurance Company of America.

"RESOLVED, That any and all Powers of Attorney and Certified Copies of such Powers of Attorney and certification in respect thereto, granted and executed by the President or any Vice President in conjunction with any Vice President of the Company, shall be binding on the Company to the same extent as if all signatures therein were manually affixed, even though one or more of any such signatures thereon may be facsimile." (Adopted October 7, 1981 - The Hanover Insurance Company; Adopted April 14, 1982 - Massachusetts Bay Insurance Company; Adopted September 7, 2001 - Citizens Insurance Company of America)

GIVEN under my hand and the seals of said Companies, at Worcester, Massachusetts, this 21<sup>ST</sup> day of May 2015.

THE HANOVER INSURANCE COMPANY  
MASSACHUSETTS BAY INSURANCE COMPANY  
CITIZENS INSURANCE COMPANY OF AMERICA

*Glenn Margosian*  
Glenn Margosian, Vice President

**SECTION 00 51 00**  
**NOTICE OF AWARD**

Date: June 16, 2015

[Certified Mail -- Return Receipt Requested]

TO: APPLIED ECOLOGICAL SERVICES  
(BIDDER)

ADDRESS: 17921 W. Smith Road; Brodhead, WI 53520

Contract: 3775-15-01

Project: Menekaunee Harbor Restoration Project

You are notified that your Bid dated **May 27, 2015** for the above Contract has been considered. You are the apparent Successful Bidder and have been awarded a Contract for CITY OF MARINETTE MENEKAUNEE HARBOR RESTORATION PROJECT; CONTRACT 3775-15-01

(Indicate total Work, alternates or sections or Work awarded)

The Contract Price of your Contract is Four Hundred Fourteen Thousand Thirty Four Dollars and 55/100 Dollars (**\$414,034.55**).

4 copies of each of the proposed Legal Documents accompany this Notice of Award.

You must comply with the following conditions precedent within 15 days of the date you receive this Notice of Award. 4 sets of the Contract documents will be delivered separately or otherwise made available to you immediately.

1. Deliver to the OWNER 4 fully executed counterparts of the Legal Documents. [Each of the Legal Documents must bear your signature on 00 51 00-2].
2. Deliver with the executed Legal Documents the Contract security (Bonds) as specified in the Instructions to Bidders (Article 20), [and] General Conditions (paragraph 5.01) [and Supplementary Conditions (paragraph SC-5.01).]

3. (List other conditions precedent).

\_\_\_\_\_  
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\_\_\_\_\_  
\_\_\_\_\_

Failure to comply with these conditions within the time specified will entitle OWNER to consider your Bid in default, to annul this Notice of Award and to declare your Bid security forfeited.

Within ten days after you comply with the above conditions, OWNER will return to you one fully executed counterpart of the Contract Documents.

CITY OF MARINETTE  
(OWNER)

By: Brian A. Miller  
(AUTHORIZED SIGNATURE)

City Engineer  
(TITLE)

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged by Dan Spethmann

This the 13<sup>th</sup> day of July, 2015.

By: Dan Spethmann/ds

Title: President

Copy to ENGINEER  
(Use Certified Mail, Return Receipt Requested)

**SECTION 00 52 00  
STANDARD FORM OF AGREEMENT  
BETWEEN OWNER AND CONTRACTOR  
ON THE BASIS OF A STIPULATED PRICE**

**THIS AGREEMENT** is by and between CITY OF MARINETTE

(hereinafter called OWNER) and APPLIED ECOLOGICAL SERVICES

(hereinafter called CONTRACTOR).

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, 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:

**MENKAUNEE HARBOR RESTORATION PROJECT ; CONTRACT NO. 3775-15-01**

**ARTICLE 2 - THE PROJECT**

2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

**MENKAUNEE HARBOR RESTORATION PROJECT ; CONTRACT NO. 3775-15-01**

**ARTICLE 3 - ENGINEER**

3.01 The Project has been designed by Robert E. Lee & Associates, Inc., who is hereinafter called ENGINEER and who 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 the 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 Substantial Completion and Final Completion/Payment

A. After the date when the contract times commence to run, as provided in paragraph 2.03 of the General Conditions and in accordance with paragraphs 14.04, 14.05, 14.06, and 14.07 of the General Conditions; the milestone(s), substantial completion, final completion and final payment dates are as follows:

Substantial Completion: November 20, 2015 Dates

Final Completion and Payment: November 18, 2015 Dates

- A. The work necessary to achieve the milestone(s): as identified in Section 01 11 00, Special Provisions shall be substantially completed on November 20, 2015 from the date when the contract times commence to run provided in Paragraph 2.03 of the General Conditions

#### 4.04 Liquidated Damages

- A. CONTRACTOR and OWNER recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. 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), CONTRACTOR shall pay OWNER \$1,000 each day that expires after the time specified in paragraph 4.02 for Substantial Completion until the Work is substantially complete.
- B. After Substantial Completion, if CONTRACTOR shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by OWNER, CONTRACTOR shall pay OWNER \$1,500 for each day that expires after the time specified in paragraph 4.02 for Final Completion and readiness for final payment until the Work is completed and ready for final payment. The owner reserves the right to deduct the amount of the liquidated damages from the final payment or retainage.

### ARTICLE 5 - CONTRACT PRICE

- 5.01 OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to paragraph 5.01.A below:

- A. For all Unit Price Work, an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the estimated quantity of that item as indicated in this paragraph:

Four Hundred Fourteen Thousand Thirty Four Dollars and 55/100

\_\_\_\_\_ (words)

\$414,034.55

\_\_\_\_\_ (figure)

As provided in paragraph 11.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by ENGINEER as provided in paragraph 9.08 of the General Conditions. Unit prices have been computed as provided in paragraph 11.03 of the General Conditions.

### ARTICLE 6 - PAYMENT PROCEDURES

#### 6.01 Submittal and Processing of Payments

- A. CONTRACTOR shall submit Applications for Payment in accordance with Article 14 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 *before* the **2<sup>nd</sup> Friday of each month** during performance of the Work as provided in paragraphs 6.02.A.1 and 6.02.A.2 below. *If the application for payment is not received by the date specified, the payment shall be delayed to the next scheduled approval date.* All such payments will be measured by the schedule of values established in paragraph 2.07.A of 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 in the General Requirements:
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 ENGINEER may determine or OWNER may withhold, in accordance with paragraph 14.02 of the General Conditions:
    - a. 95% of Work completed (with the balance being retainage). When the Work has been 50% completed as determined by ENGINEER, and if the character and progress of the Work have been satisfactory to OWNER and ENGINEER, OWNER, on recommendation of ENGINEER, may determine that as long as the character and progress of the Work remain satisfactory to them, there will be no retainage on account of Work subsequently completed, in which case the remaining progress payments prior to Substantial Completion will be in an amount equal to 100% of the Work completed less the aggregate of payments previously made; and
  2. Upon Substantial Completion, OWNER shall pay an amount sufficient to increase total payments to CONTRACTOR to 95% of the Work completed, less such amounts as ENGINEER shall determine in accordance with paragraph 14.02.B.5 of the General Conditions.

## 6.03 Final Payment

- A. Upon final completion and acceptance of the Work in accordance with paragraph 14.07 of the General Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in said paragraph 14.07.

## ARTICLE 7 - INTEREST

- 7.01 All moneys not paid when due as provided in Article 14 of the General Conditions shall bear interest at a rate equal to the daily prime lending rate as published in the Wall Street Journal plus 1.5%.

## ARTICLE 8 - CONTRACTOR'S REPRESENTATIONS

- 8.01 In order to induce OWNER to enter into this Agreement CONTRACTOR makes the following representations:
- A. CONTRACTOR has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.

- B. CONTRACTOR has visited the Site 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 federal, state, and local 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 contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in paragraph 4.02 of the General Conditions and (2) reports and drawings of a Hazardous Environmental Condition, if any, at the Site which has been identified in the Supplementary Conditions as provided in paragraph 4.06 of the General Conditions.
- E. CONTRACTOR has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR, including applying the specific means, methods, techniques, sequences, and procedures of construction, if any, expressly required by the Contract Documents to be employed by CONTRACTOR, and safety precautions and programs incident thereto
- F. CONTRACTOR does not consider that any 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 Documents.
- 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 correlated the information known to CONTRACTOR, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.
- I. 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.
- J. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

## ARTICLE 9 - CONTRACT DOCUMENTS

### 9.01 Contents of Contract Documents

- A. The Contract Documents consist of the following:

1. This Agreement (pages 00 52 00-1 to 00 52 00-7, inclusive);
  2. Performance Bond (pages 00 61 13.13-1 to 00 61 13.13-3, inclusive);
  3. Payment Bond (pages 00 61 13.16-1 to 00 61 13.16-3, inclusive);
  4. Bid Bond (pages 00 43 13-1 to 00 43 13-3, inclusive);
  5. Other Bonds (pages \_\_\_\_\_ to \_\_\_\_\_, inclusive);
    - a. \_\_\_\_\_ (pages \_\_\_\_\_ to \_\_\_\_\_, inclusive);
    - b. \_\_\_\_\_ (pages \_\_\_\_\_ to \_\_\_\_\_, inclusive);
    - c. \_\_\_\_\_ (pages \_\_\_\_\_ to \_\_\_\_\_, inclusive);
  6. General Conditions (pages 00 72 00-1 to 00 72 00-63, inclusive);
  7. Supplementary Conditions (pages 00 73 00-1 to 00 73 00-4, inclusive);
  8. Specifications as listed in the table of contents of the Project Manual;
  9. Drawings consisting of a cover sheet and sheets numbered 1 through 10, inclusive, with each sheet bearing the following general title: City of Marinette, Menekaunee Harbor Restoration Project; Contract 3775-15-01; Marinette County, Wisconsin;
  10. Addenda (numbers 1 to 2, inclusive);
  11. Exhibits to this Agreement (enumerated as follows):
    - a. Notice to Proceed (pages 00 55 00-1 to 00 55 00-1, inclusive);
    - b. CONTRACTOR's Bid (pages 00 41 13-1 to 00 41 13-8, inclusive);
    - c. Documentation submitted by CONTRACTOR prior to Notice of Award (pages 00 41 13-1 to 00 43 13-3, inclusive);
  12. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
    - a. Written Amendments;
    - b. Work Change Directives;
    - c. Change Order(s).
- 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 paragraph 3.05 of the General Conditions.

#### 9.02 Legal Documents

A. The legal documents are a subset of the contract documents which form the Agreement for services by and between the Owner and Contractor.

B. The legal documents consist of the following:

1. Notice of Award (Pages 00 51 00-1 to 00 51 00-2, inclusive).
2. This Agreement (Pages 00 52 00-1 to 00 52 00-7, inclusive).

### **ARTICLE 10 - MISCELLANEOUS**

#### 10.01 Terms

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

#### 10.02 Assignment of Contract

A. 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, moneys that may become due and moneys that are 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 partners, successors, assigns, and legal representatives to the other party hereto, its partners, 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.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement in duplicate. One counterpart each has been delivered to OWNER and CONTRACTOR. All portions of the Contract Documents have been signed or identified by OWNER and CONTRACTOR or on their behalf.

This Agreement will be effective on June 25, 2015 (which is the Effective Date of the Agreement).

OWNER:  
CITY OF MARINETTE

By: [Signature]

[CORPORATE SEAL]

Attest

Address for giving notices:  
City of Marinette—City Hall  
1905 Hall Avenue  
Marinette, WI 54143

(If OWNER is a corporation, attach evidence of authority to sign. If OWNER is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of OWNER-CONTRACTOR Agreement.)

Designated Representative:

Name: Brian Miller

Title: City Engineer

Address: 1905 Hall Avenue  
Marinette, WI 54143

Phone: 715-732-5134

Facsimile: \_\_\_\_\_

Email: bmiller@marinette.wi.us

CONTRACTOR:  
[Signature]

By: Dan Spethmann

[CORPORATE SEAL]

Attest [Signature]

Address for giving notices:  
Applied Ecological Services  
Po Box 256  
Brodhead, WI 53520

License No. \_\_\_\_\_  
(Where applicable)

Agent for service of process: \_\_\_\_\_

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

Designated Representative:

Name: Josh Kraemer

Title: Project Manager

Address: 17921 W. Smith Rd.  
Brodhead, WI 53520

Phone: 608-214-1226

Facsimile: 608-897-8486

Email: Joshua.Kraemer@appliedeco.com

**SECTION 00 55 00**  
**NOTICE TO PROCEED**

Dated July 29, 2015

TO: APPLIED ECOLOGICAL SERVICES  
(CONTRACTOR)

ADDRESS: P.O. Box 256; Brodhead, WI 53520

Contract: 3775-15-01

Project: MENKAUNEE HARBOR RESTORATION PROJECT

You are notified that the Contract Times under the above contract will commence to run on **August 3, 2015**. By that date, you are to start performing your obligations under the Contract Documents. In accordance with Article 4 of the Agreement the date of Substantial Completion is **November 20, 2015** and the date of readiness for final payment is **November 18, 2015**.

Before you may start any Work at the Site, paragraph 2.05.C of the General Conditions provides that you and Owner must each deliver to the other (with copies to Engineer and other identified additional insureds) certificates of insurance which each is required to purchase and maintain in accordance with the Contract Documents.

Also, before you may start any Work at the Site, you must

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

CITY OF MARINETTE  
(OWNER)

By:   
(AUTHORIZED SIGNATURE)

Mayer  
(TITLE)

Copy to ENGINEER

Acceptance of Notice: Receipt of the above Notice to Proceed is hereby acknowledged by:

Don Spalthmann/dm  
(CONTRACTOR REPRESENTATIVE)

8/14/15  
(DATE)

President  
(TITLE)

## **LABELED TAB - BONDS**

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**\*Place labeled tab before Section 00 61 13.**



### SECTION 00 61 13.13 (C-610) PERFORMANCE BOND

CONTRACTOR: Applied Ecological Services, Inc.  
17921 W. Smith Road  
Brodhead, WI 53520

SURETY (name and address of principal place of business):  
The Hanover Insurance Company  
440 Lincoln St  
Worcester, MA 01653

OWNER: City of Marinette—City Hall  
1905 Hall Avenue  
Marinette, WI 54143

#### CONSTRUCTION CONTRACT

Effective Date of the Agreement: June 25, 2015  
Amount: Four Hundred Fourteen Thousand Thirty Four Dollars and 55/100 (\$414,034.55)  
Description: Menekaunee Harbor Restoration Project; Contract No. 3775-15-01

#### BOND

Bond Number: 1035463  
Date (not earlier than the Effective Date of the Agreement of the Construction Contract): July 9, 2015  
Amount: Four Hundred Fourteen Thousand Thirty Four Dollars and 55/100 (\$414,034.55)  
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**  
Applied Ecological Services, Inc. (seal)  
Contractor's Name and Corporate Seal

By: Dan Spethmann  
Signature

Dan Spethmann  
Print Name

President  
Title

Attest: Charles Campbell  
Signature

Project Estimator  
Title

**SURETY**  
The Hanover Insurance Company (seal)  
Surety's Name and Corporate Seal

By: [Signature]  
Signature (attach power of attorney)

Robert Downey  
Print Name

Attorney-in-Fact  
Title

Attest: [Signature]  
Signature

Molli J. Hansen, Witness  
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.

W:\3700\3775\3775-005\15-01\performance bond.docx

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: **NONE**



### SECTION 00 61 13.16 (C-615) PAYMENT BOND

CONTRACTOR: Applied Ecological Services, Inc.  
17921 W. Smith Road  
Brodhead, WI 53520

SURETY (name and address of principal place of business):  
The Hanover Insurance Company  
440 Lincoln St  
Worcester, MA 01655

OWNER: City of Marinette—City Hall  
1905 Hall Avenue  
Marinette, WI 54143

#### CONSTRUCTION CONTRACT

Effective Date of the Agreement: June 25, 2015  
Amount: Four Hundred Fourteen Thousand Thirty Four Dollars and 55/100 (\$414,034.55)  
Description: Menekaunee Harbor Restoration Project; Contract No. 3775-15-01

#### BOND

Bond Number: 1035463  
Date (not earlier than the Effective Date of the Agreement of the Construction Contract): July 9, 2015  
Amount: Four Hundred Fourteen Thousand Thirty Four Dollars and 55/100 (\$414,034.55)  
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**  
Applied Ecological Services, Inc. \_\_\_\_\_ (seal)

Contractor's Name and Corporate Seal

By: Dan Spethmann  
Signature

Dan Spethmann  
Print Name

President  
Title

Attest: Charles Campbell  
Signature

Project Estimator  
Title

**SURETY**  
The Hanover Insurance Company \_\_\_\_\_ (seal)

Surety's Name and Corporate Seal

By: [Signature]  
Signature (attach power of attorney)

Robert Downey  
Print Name

Attorney-in-Fact  
Title

Attest: [Signature]  
Signature

Molli J. Hansen, Witness  
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
8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

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: NONE

THE HANOVER INSURANCE COMPANY  
MASSACHUSETTS BAY INSURANCE COMPANY  
CITIZENS INSURANCE COMPANY OF AMERICA

POWERS OF ATTORNEY  
CERTIFIED COPY

KNOW ALL MEN BY THESE PRESENTS: That THE HANOVER INSURANCE COMPANY and MASSACHUSETTS BAY INSURANCE COMPANY, both being corporations organized and existing under the laws of the State of New Hampshire, and CITIZENS INSURANCE COMPANY OF AMERICA, a corporation organized and existing under the laws of the State of Michigan, do hereby constitute and appoint

**Michael J. Douglas, Chris Steinagel, Christopher M. Kemp, Robert Downey and/or Connie Smith**

of **Hudson, WI** and each is a true and lawful Attorney(s)-in-fact to sign, execute, seal, acknowledge and deliver for, and on its behalf, and as its act and deed any place within the United States, or, if the following line be filled in, only within the area therein designated any and all bonds, recognizances, undertakings, contracts of indemnity or other writings obligatory in the nature thereof, as follows:

**Any such obligations in the United States, not to exceed Twenty Million and No/100 (\$20,000,000) in any single instance**

and said companies hereby ratify and confirm all and whatsoever said Attorney(s)-in-fact may lawfully do in the premises by virtue of these presents. These appointments are made under and by authority of the following Resolution passed by the Board of Directors of said Companies which resolutions are still in effect:

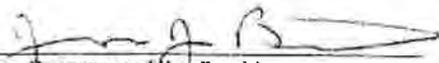
"RESOLVED, That the President or any Vice President, in conjunction with any Vice President, be and they are hereby authorized and empowered to appoint Attorneys-in-fact of the Company, in its name and as its acts, to execute and acknowledge for and on its behalf as Surety any and all bonds, recognizances, contracts of indemnity, waivers of citation and all other writings obligatory in the nature thereof, with power to attach thereto the seal of the Company. Any such writings so executed by such Attorneys-in-fact shall be as binding upon the Company as if they had been duly executed and acknowledged by the regularly elected officers of the Company in their own proper persons." (Adopted October 7, 1981 - The Hanover Insurance Company; Adopted April 14, 1982 - Massachusetts Bay Insurance Company; Adopted September 7, 2001 - Citizens Insurance Company of America)

IN WITNESS WHEREOF, THE HANOVER INSURANCE COMPANY, MASSACHUSETTS BAY INSURANCE COMPANY and CITIZENS INSURANCE COMPANY OF AMERICA have caused these presents to be sealed with their respective corporate seals, duly attested by two Vice Presidents, this **20th** day of **December 2011**.



THE HANOVER INSURANCE COMPANY  
MASSACHUSETTS BAY INSURANCE COMPANY  
CITIZENS INSURANCE COMPANY OF AMERICA

  
Robert Thomas, Vice President

  
Joe Brenstrom, Vice President

THE COMMONWEALTH OF MASSACHUSETTS )  
COUNTY OF WORCESTER ) ss.

On this **20th** day of **December 2011** before me came the above named Vice Presidents of The Hanover Insurance Company, Massachusetts Bay Insurance Company and Citizens Insurance Company of America, to me personally known to be the individuals and officers described herein, and acknowledged that the seals affixed to the preceding instrument are the corporate seals of The Hanover Insurance Company, Massachusetts Bay Insurance Company and Citizens Insurance Company of America, respectively, and that the said corporate seals and their signatures as officers were duly affixed and subscribed to said instrument by the authority and direction of said Corporations.

 BARBARA A. GARLICK  
Notary Public  
Commonwealth of Massachusetts  
My Commission Expires Sept. 21, 2018

  
Barbara A. Garlick, Notary Public  
My Commission Expires September 21, 2018

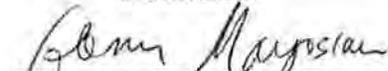
I, the undersigned Vice President of The Hanover Insurance Company, Massachusetts Bay Insurance Company and Citizens Insurance Company of America, hereby certify that the above and foregoing is a full, true and correct copy of the Original Power of Attorney issued by said Companies, and do hereby further certify that the said Powers of Attorney are still in force and effect.

This Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of The Hanover Insurance Company, Massachusetts Bay Insurance Company and Citizens Insurance Company of America.

"RESOLVED, That any and all Powers of Attorney and Certified Copies of such Powers of Attorney and certification in respect thereto, granted and executed by the President or any Vice President in conjunction with any Vice President of the Company, shall be binding on the Company to the same extent as if all signatures therein were manually affixed, even though one or more of any such signatures thereon may be facsimile." (Adopted October 7, 1981 - The Hanover Insurance Company; Adopted April 14, 1982 - Massachusetts Bay Insurance Company; Adopted September 7, 2001 - Citizens Insurance Company of America)

GIVEN under my hand and the seals of said Companies, at Worcester, Massachusetts, this 9th day of July 2015.

THE HANOVER INSURANCE COMPANY  
MASSACHUSETTS BAY INSURANCE COMPANY  
CITIZENS INSURANCE COMPANY OF AMERICA

  
Glenn Margosian, Vice President





# Additional Insured – Automatic – Owners, Lessees Or Contractors

Policy No.	Eff. Date of Pol.	Exp. Date of Pol.	Eff. Date of End.	Producer No.	Add'l. Prem	Return Prem.
GLO-0111561-00	03/01/2015	03/01/2016		39062000		

**THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.**

**Named Insured:** Applied Ecological Services, Inc.

**Address (including ZIP Code):** 17921 W Smith Rd, Brodhead, WI 53520

This endorsement modifies insurance provided under the:

**Commercial General Liability Coverage Part**

**A. Section II – Who Is An Insured** is amended to include as an additional insured any person or organization whom you are required to add as an additional insured on this policy under a written contract or written agreement. Such person or organization is an additional insured only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by:

1. Your acts or omissions; or
2. The acts or omissions of those acting on your behalf,

in the performance of your ongoing operations or "your work" as included in the "products-completed operations hazard", which is the subject of the written contract or written agreement.

However, the insurance afforded to such additional insured:

1. Only applies to the extent permitted by law; and
2. Will not be broader than that which you are required by the written contract or written agreement to provide for such additional insured.

**B.** With respect to the insurance afforded to these additional insureds, the following additional exclusion applies:

This insurance does not apply to:

"Bodily injury", "property damage" or "personal and advertising injury" arising out of the rendering of, or failure to render, any professional architectural, engineering or surveying services including:

- a. The preparing, approving or failing to prepare or approve maps, shop drawings, opinions, reports, surveys, field orders, change orders or drawings and specifications; or
- b. Supervisory, inspection, architectural or engineering activities.

This exclusion applies even if the claims against any insured allege negligence or other wrongdoing in the supervision, hiring, employment, training or monitoring of others by that insured, if the "occurrence" which caused the "bodily injury" or "property damage", or the offense which caused the "personal and advertising injury", involved the rendering of or the failure to render any professional architectural, engineering or surveying services.

C. The following is added to Paragraph 2. Duties In The Event Of Occurrence, Offense, Claim Or Suit of Section IV – **Commercial General Liability Conditions:**

The additional insured must see to it that:

1. We are notified as soon as practicable of an "occurrence" or offense that may result in a claim;
2. We receive written notice of a claim or "suit" as soon as practicable; and
3. A request for defense and indemnity of the claim or "suit" will promptly be brought against any policy issued by another insurer under which the additional insured may be an insured in any capacity. This provision does not apply to insurance on which the additional insured is a Named Insured if the written contract or written agreement requires that this coverage be primary and non-contributory.

D. For the purposes of the coverage provided by this endorsement:

1. The following is added to the Other Insurance Condition of Section IV – **Commercial General Liability Conditions:**

**Primary and Noncontributory insurance**

This insurance is primary to and will not seek contribution from any other insurance available to an additional insured provided that:

- a. The additional insured is a Named Insured under such other insurance; and
  - b. You are required by written contract or written agreement that this insurance be primary and not seek contribution from any other insurance available to the additional insured.
2. The following paragraph is added to Paragraph 4.b. of the Other Insurance Condition of Section IV – **Commercial General Liability Conditions:**

This insurance is excess over:

Any of the other insurance, whether primary, excess, contingent or on any other basis, available to an additional insured, in which the additional insured on our policy is also covered as an additional insured on another policy providing coverage for the same "occurrence", offense, claim or "suit". This provision does not apply to any policy in which the additional insured is a Named Insured on such other policy and where our policy is required by a written contract or written agreement to provide coverage to the additional insured on a primary and non-contributory basis.

E. This endorsement does not apply to an additional insured which has been added to this policy by an endorsement showing the additional insured in a Schedule of additional insureds, and which endorsement applies specifically to that identified additional insured.

F. With respect to the insurance afforded to the additional insureds under this endorsement, the following is added to Section III – **Limits Of Insurance:**

The most we will pay on behalf of the additional insured is the amount of insurance:

1. Required by the written contract or written agreement referenced in Paragraph A. of this endorsement; or
2. Available under the applicable Limits of Insurance shown in the Declarations, whichever is less.

This endorsement shall not increase the applicable Limits of Insurance shown in the Declarations.

All other terms and conditions of this policy remain unchanged.



**ZURICH**<sup>®</sup>

# Coverage Extension Endorsement

Policy No.	Eff. Date of Pol.	Exp. Date of Pol.	Eff. Date of End.	Producer No.	Add'l. Prem	Return Prem.

**THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.**

This endorsement modifies insurance provided under the:

- Business Auto Coverage Form**
- Motor Carrier Coverage Form**

## **A. Amended Who Is An Insured**

1. The following is added to the **Who Is An Insured** Provision in **Section II – Covered Autos Liability Coverage**:

The following are also "insureds":

- a. Any "employee" of yours is an "insured" while using a covered "auto" you don't own, hire or borrow for acts performed within the scope of employment by you. Any "employee" of yours is also an "insured" while operating an "auto" hired or rented under a contract or agreement in an "employee's" name, with your permission, while performing duties related to the conduct of your business.
- b. Anyone volunteering services to you is an "insured" while using a covered "auto" you don't own, hire or borrow to transport your clients or other persons in activities necessary to your business.
- c. Anyone else who furnishes an "auto" referenced in Paragraphs **A.1.a.** and **A.1.b.** in this endorsement.
- d. Where and to the extent permitted by law, any person(s) or organization(s) where required by written contract or written agreement with you executed prior to any "accident", including those person(s) or organization(s) directing your work pursuant to such written contract or written agreement with you, provided the "accident" arises out of operations governed by such contract or agreement and only up to the limits required in the written contract or written agreement, or the Limits of Insurance shown in the Declarations, whichever is less.

2. The following is added to the **Other Insurance** Condition in the Business Auto Coverage Form and the **Other Insurance – Primary and Excess Insurance Provisions Condition** in the Motor Carrier Coverage Form:

Coverage for any person(s) or organization(s), where required by written contract or written agreement with you executed prior to any "accident", will apply on a primary and non-contributory basis and any insurance maintained by the additional "insured" will apply on an excess basis. However, in no event will this coverage extend beyond the terms and conditions of the Coverage Form.

## **B. Amendment – Supplementary Payments**

Paragraphs **a.(2)** and **a.(4)** of the **Coverage Extensions** Provision in **Section II – Covered Autos Liability Coverage** are replaced by the following:

- (2) Up to \$5,000 for the cost of bail bonds (including bonds for related traffic law violations) required because of an "accident" we cover. We do not have to furnish these bonds.
- (4) All reasonable expenses incurred by the "insured" at our request, including actual loss of earnings up to \$500 a day because of time off from work.

# Waiver Of Subrogation (Blanket) Endorsement

Policy No.	Eff. Date of Pol.	Exp. Date of Pol.	Eff. Date of End.	Producer	Add'l. Prem	Return Prem.
					\$	\$

**THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.**

This endorsement modifies insurance provided under the:

**Commercial General Liability Coverage Part**

The following is added to the **Transfer Of Rights Of Recovery Against Others To Us Condition**:

If you are required by a written contract or agreement, which is executed before a loss, to waive your rights of recovery from others, we agree to waive our rights of recovery. This waiver of rights shall not be construed to be a waiver with respect to any other operations in which the insured has no contractual interest.

**THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.**

**WAIVER OF TRANSFER OF RIGHTS OF RECOVERY  
AGAINST OTHERS TO US (WAIVER OF SUBROGATION)**

This endorsement modifies insurance provided under the following:

- AUTO DEALERS COVERAGE FORM
- BUSINESS AUTO COVERAGE FORM
- MOTOR CARRIER COVERAGE FORM

With respect to coverage provided by this endorsement, the provisions of the Coverage Form apply unless modified by the endorsement.

This endorsement changes the policy effective on the inception date of the policy unless another date is indicated below.

<b>Named Insured:</b>
<b>Endorsement Effective Date:</b>

**SCHEDULE**

<b>Name(s) Of Person(s) Or Organization(s):</b>
ALL PERSONS AND/OR ORGANIZATIONS THAT ARE REQUIRED BY WRITTEN CONTRACT OR AGREEMENT WITH THE INSURED, EXECUTED PRIOR TO THE ACCIDENT OR LOSS, THAT WAIVER OF SUBROGATION BE PROVIDED UNDER THIS POLICY FOR WORK PERFORMED BY YOU AND FOR THAT PERSON AND/OR ORGANIZATION.
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.

**The Transfer Of Rights Of Recovery Against Others To Us** condition does not apply to the person(s) or organization(s) shown in the Schedule, but only to the extent that subrogation is waived prior to the "accident" or the "loss" under a contract with that person or organization.

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## WAIVER OF OUR RIGHT TO RECOVER FROM OTHERS ENDORSEMENT

We have the right to recover our payments from anyone liable for an injury covered by this policy. We will not enforce our right against the person or organization named in the Schedule. (This agreement applies only to the extent that you perform work under a written contract that requires you to obtain this agreement from us.)

This agreement shall not operate directly or indirectly to benefit anyone not named in the Schedule.

### Schedule

ALL PERSONS AND/OR ORGANIZATIONS THAT ARE REQUIRED BY WRITTEN CONTRACT OR AGREEMENT WITH THE INSURED, EXECUTED PRIOR TO THE ACCIDENT OR LOSS, THAT WAIVER OF SUBROGATION BE PROVIDED UNDER THIS POLICY FOR WORK PERFORMED BY YOU AND FOR THAT PERSON AND/OR ORGANIZATION

This endorsement changes the policy to which it is attached and is effective on the date issued unless otherwise stated.

**(The information below is required only when this endorsement is issued subsequent to preparation of the policy.)**

Endorsement Effective Policy No. WC 0111572-00 Endorsement No.  
Insured Applied Ecological Services, Inc. Premium \$

Insurance Company Zurich American Insurance Company Countersigned by \_\_\_\_\_



**ZURICH**<sup>®</sup>

## **Blanket Notification to Others of Cancellation or Non-Renewal**

Policy No.	Eff. Date of Pol.	Exp. Date of Pol.	Eff. Date of End.	Producer No.	Add'l. Prem	Return Prem.

### **THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.**

This endorsement modifies insurance provided under the:

#### **Commercial Automobile Coverage Part**

- A.** If we cancel or non-renew this Coverage Part by written notice to the first Named Insured, we will mail or deliver notification that such Coverage Part has been cancelled or non-renewed to each person or organization shown in a list provided to us by the first Named Insured if you are required by written contact or written agreement to provide such notification. However, such notification will not be mailed or delivered if a conditional notice of renewal has been sent to the first Named Insured. Such list:
1. Must be provided to us prior to cancellation or non-renewal;
  2. Must contain the names and addresses of only the persons or organizations requiring notification that such Coverage Part has been cancelled or non-renewed; and
  3. Must be in an electronic format that is acceptable to us.
- B.** Our notification as described in Paragraph **A.** of this endorsement will be based on the most recent list in our records as of the date the notice of cancellation or non-renewal is mailed or delivered to the first Named Insured. We will mail or deliver such notification to each person or organization shown in the list:
1. Within seven days of the effective date of the notice of cancellation, if we cancel for non-payment of premium; or
  2. At least 30 days prior to the effective date of:
    - a. Cancellation, if cancelled for any reason other than nonpayment of premium; or
    - b. Non-renewal, but not including conditional notice of renewal.
- C.** Our mailing or delivery of notification described in Paragraphs **A.** and **B.** of this endorsement is intended as a courtesy only. Our failure to provide such mailing or delivery will not:
1. Extend the Coverage Part cancellation or non-renewal date;
  2. Negate the cancellation or non-renewal; or
  3. Provide any additional insurance that would not have been provided in the absence of this endorsement.
- D.** We are not responsible for the accuracy, integrity, timeliness and validity of information contained in the list provided to us as described in Paragraphs **A.** and **B.** of this endorsement.

All other terms and conditions of this policy remain unchanged.



**ZURICH**<sup>®</sup>

# Blanket Notification to Others of Cancellation or Non-Renewal

Policy No.	Eff. Date of Pol.	Exp. Date of Pol.	Eff. Date of End.	Producer No.	Add'l. Prem	Return Prem.

**THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.**

This endorsement modifies insurance provided under the:

**Commercial General Liability Coverage Part**

- A.** If we cancel or non-renew this Coverage Part by written notice to the first Named Insured, we will mail or deliver notification that such Coverage Part has been cancelled or non-renewed to each person or organization shown in a list provided to us by the first Named Insured if you are required by written contact or written agreement to provide such notification. However, such notification will not be mailed or delivered if a conditional notice of renewal has been sent to the first Named Insured. Such list:
  - 1. Must be provided to us prior to cancellation or non-renewal;
  - 2. Must contain the names and addresses of only the persons or organizations requiring notification that such Coverage Part has been cancelled or non-renewed; and
  - 3. Must be in an electronic format that is acceptable to us.
- B.** Our notification as described in Paragraph **A.** of this endorsement will be based on the most recent list in our records as of the date the notice of cancellation or non-renewal is mailed or delivered to the first Named Insured. We will mail or deliver such notification to each person or organization shown in the list:
  - 1. Within seven days of the effective date of the notice of cancellation, if we cancel for non-payment of premium; or
  - 2. At least 30 days prior to the effective date of:
    - a. Cancellation, if cancelled for any reason other than nonpayment of premium; or
    - b. Non-renewal, but not including conditional notice of renewal.
- C.** Our mailing or delivery of notification described in Paragraphs **A.** and **B.** of this endorsement is intended as a courtesy only. Our failure to provide such mailing or delivery will not:
  - 1. Extend the Coverage Part cancellation or non-renewal date;
  - 2. Negate the cancellation or non-renewal; or
  - 3. Provide any additional insurance that would not have been provided in the absence of this endorsement.
- D.** We are not responsible for the accuracy, integrity, timeliness and validity of information contained in the list provided to us as described in Paragraphs **A.** and **B.** of this endorsement.

All other terms and conditions of this policy remain unchanged.

**BLANKET NOTIFICATION TO OTHERS OF CANCELLATION OR NONRENEWAL ENDORSEMENT**

This endorsement adds the following to Part Six of the policy.

**PART SIX  
CONDITIONS**

**Blanket Notification to Others of Cancellation or Nonrenewal**

1. If we cancel or non-renew this policy by written notice to you, we will mail or deliver notification that such policy has been cancelled or non-renewed to each person or organization shown in a list provided to us by you if you are required by written contract or written agreement to provide such notification. However, such notification will not be mailed or delivered if a conditional notice of renewal has been sent to you. Such list:
  - a. Must be provided to us prior to cancellation or non-renewal;
  - b. Must contain the names and addresses of only the persons or organizations requiring notification that such policy has been cancelled or non-renewed; and
  - c. Must be in an electronic format that is acceptable to us.
2. Our notification as described in Paragraph 1. above will be based on the most recent list in our records as of the date the notice of cancellation or non-renewal is mailed or delivered to you. We will mail or deliver such notification to each person or organization shown in the list:
  - a. Within seven days of the effective date of the notice of cancellation, if we cancel for non-payment of premium; or
  - b. At least 30 days prior to the effective date of:
    - (1) Cancellation, if cancelled for any reason other than nonpayment of premium; or
    - (2) Non-renewal, but not including conditional notice of renewal.
3. Our mailing or delivery of notification described in Paragraphs 1. and 2. above is intended as a courtesy only. Our failure to provide such mailing or delivery will not:
  - a. Extend the policy cancellation or non-renewal date;
  - b. Negate the cancellation or non-renewal; or
  - c. Provide any additional insurance that would not have been provided in the absence of this endorsement.
4. We are not responsible for the accuracy, integrity, timeliness and validity of information contained in the list provided to us as described in Paragraphs 1. and 2. above.

All other terms and conditions of this policy remain unchanged.

This endorsement changes the policy to which it is attached and is effective on the date issued unless otherwise stated.

**(The information below is required only when this endorsement is issued subsequent to preparation of the policy.)**

Endorsement Effective  
Insured

Policy No.

Endorsement No.  
Premium \$

Insurance Company

## BUILDERS RISK COVERAGE DECLARATIONS

The Declarations, Supplemental Declarations, Common Policy Conditions, Commercial Inland Marine Conditions, Coverage Form(s) And Endorsement(s), if any, issued to and forming a part thereof, complete the Commercial Insurance Policy numbered as follows:

**American Zurich Insurance Company  
A Stock Company  
Administrative Office: 1400 American Lane  
Schaumburg, IL 60196**

- New Policy**    **BR07936687**  
 **Renewal of**  
 **Rewrite of**

**THIS IS A COINSURANCE CONTRACT**

Please read your policy.

In return for the payment of the premium, and subject to all terms of this policy, we agree with you to provide the insurance as stated in this policy.

**1. Named Insured and Mailing Address:**

Applied Ecological Services, Inc.  
17921 West Smith Road  
Brodhead, WI 53520-9355

**2. Producer Information:**

- A Name: M3 INSURANCE SOLUTIONS INC  
PO BOX 8950  
MADISON, WI 53708-8950  
 B Telephone # +1 608 288 0655  
 C Fax # +1 608 273 1725  
 D Zurich Producer # 02050839  
 E Field Office Name  
 F Field Office Code

- 3. Policy Period – From:** 07/24/2015    **To:** 07/24/2016  
12:01 a.m. at your mailing address above.

- 4. Form of Business:**  Individual  Partnership  Corporation  Joint Venture  Other  
**5. Limits of Insurance** (*either* One-Shot *or* Reporting Form *as indicated below*)

**SUPPLEMENTAL DECLARATIONS**

(If this box is checked, Supplemental Declarations is attached to and forms a part of this policy)

- Reporting Form (continuous policy)**  
 **Annual Rate**     **Monthly Rate (HBIS – 4)**
- A) Any one building or structure    \$  
 B) All covered property at all locations    \$  
 C) Rate    Per Report  
 D) Premium    Per Report  
 E) Total Taxes and Surcharges    Per Report  
 (per attached endorsement – N/A in NY)  
 F) **Total Fully Earned Policy Premium**    Per Report

- One-Shot (non-reporting form/single structure policy)**  
 **1-4 Family Dwelling**     **Commercial Structure**
- Property Location  
Menekaunee Harbor  
Marinette, WI 54143
- New Construction**
- A) Any one building or structure    \$    414,035  
 B) All covered property at all locations    \$    414,035  
 (same as A unless otherwise noted)
- Remodeling**
- D) Renovations and improvements    \$  
 E) Existing buildings or structures    \$
- F) Rate    \$    0.24  
 G) Premium    \$    994.00  
 H) Total Taxes and Surcharges    \$    0.00  
 (per attached endorsement)
- I) **Total Fully Earned Policy Premium**    \$    994.00  
 (minimum premium applicable)

- 6. Deductible:**  \$500     \$1,000     \$2,500     \$5,000     Other

**7. Forms Applicable To This Coverage Part:**

**SEE SCHEDULE OF FORMS AND ENDORSEMENTS**

Countersigned: \_\_\_\_\_ Date \_\_\_\_\_ By: \_\_\_\_\_ Authorized Representative

## BUILDERS RISK COVERAGE SUPPLEMENTAL DECLARATIONS

**Policy Number: BR07936687**

**Policy Type:**  Reporting Forms (continuous policy) OR  One-Shot (non-reporting form/single structure policy)

**ADDITIONAL COVERAGES (COVERAGE FORM) LIMIT OF INSURANCE**

a. Collapse	Included
b. Scaffolding, Construction Forms And Temporary Structures	\$ 20,000
Re-erection Of Scaffolding	\$ 10,000
c. Debris Removal	\$ 20,000
d. Back-Up Or Overflow Of Sewers, Drains Or Sumps	\$ 5,000
e. Fire Department Service Charge	\$ 10,000
f. Valuable Papers And Records	\$ 20,000
g. Pollutant Clean-Up And Removal	\$ 15,000
h. Ordinance Or Law – Direct Damage	Included
Loss To The Undamaged Portion Of The Building	
Demolition Cost	\$ 1,000,000
Increased Cost Of Construction	\$ 1,000,000
Combined Aggregate For Demolition Cost And Increased Cost Of Construction	\$ 1,000,000
i. Preservation Of Property	Included
j. Rewards	\$ 10,000
k. Property At A Temporary Storage Location	\$ 10,351
l. Property In Transit	\$ 25,000

**OPTIONAL ADDITIONAL COVERAGES (ENDORSEMENTS)**

<input type="checkbox"/> <b>Business Income (HBIS-95)</b>	\$
Anticipated Project Completion Date	
Monthly Limit Of Indemnity	(fraction)
Deductible Period	days
Civil Authority	Included
<input type="checkbox"/> <b>Business Income And Extra Expense (HBIS-82)</b>	\$
Anticipated Project Completion Date	
Monthly Limit Of Indemnity	(fraction)
Deductible Period	days
Business Income	Included
Extra Expense	Included
Civil Authority	Included
<input type="checkbox"/> <b>Development Or Subdivision Fences, Walls And Signs (HBIS-58)</b>	\$
<input type="checkbox"/> <b>Expediting Expense (HBIS-93)</b>	\$
<input type="checkbox"/> <b>Extra Expense (HBIS-92)</b>	\$
<input type="checkbox"/> <b>Marine Model Home Contents Coverage (<input type="checkbox"/> HBIS-52 –OR– <input type="checkbox"/> HBIS-77)</b>	\$
<input type="checkbox"/> <b>Soft Costs Coverage (HBIS-88)</b>	\$
Anticipated Project Completion Date	
Deductible Period	days
Expense To Mitigate Loss	Included
Civil Authority (coverage extended for 3 additional consecutive weeks)	Included

**OPTIONAL COVERAGE EXTENSION (ENDORSEMENT)**

<input type="checkbox"/> <b>Builders Risk Green Building Coverage Extension (HBIS-96)</b>	
Aggregate Limit of Liability	\$
"LEED® Building Rating"	



## Additional Insured Endorsement

**THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.**

This endorsement modifies insurance provided under the:

**BUILDERS RISK COVERAGE FORM**

When required by a written or oral contract for the location which you have reported to us, all owners; contractors and subcontractors of every tier; manufacturers; suppliers; architects and engineers are insured for their interests in the Covered Property while that Covered Property is at the location which you have reported to us.

All other terms, conditions, provisions and exclusions of this policy remain the same.

**SECTION 00 62 76**

**APPLICATION FOR PAYMENT NO. \_\_\_\_\_**

To: CITY OF MARINETTE

From: \_\_\_\_\_

Contract: 3775-15-01

Project: MENKAUNEE HARBOR RESTORATION PROJECT

For work accomplished through the date of: \_\_\_\_\_

1. Original Contract Price:	_____	
2. Add (Deduct) by Revised Quantities:	_____	
3. Net change by Change Orders and Written Amendments (+ or -):	_____	\$0.00
4. Current Contract Price (1 plus 2 plus 3):	_____	\$0.00
5. Total completed and stored to date:	_____	
6. Retainage (per Agreement):		
_____ % of completed work:	\$ _____	-
_____ % of stored material:	\$ _____	-
Total Retainage:	_____	\$0.00
7. Total completed and stored to date less retainage (5 minus 6):	_____	\$0.00
8. Less previous Application for Payments:	_____	\$0.00
9. Due this Application (7 minus 8):	_____	\$0.00

**Record of Previous Payments:**

1. _____	4. _____
2. _____	5. _____
3. _____	6. _____

Sub-Total \$0.00 \$0.00

**Accompanying Documentation:**

SUBMITTED: \_\_\_\_\_

By: \_\_\_\_\_  
 CONTRACTOR (Authorized Signature)

Date: \_\_\_\_\_

**RECOMMENDED:**

By: \_\_\_\_\_  
 ENGINEER (Authorized Signature)

Date: \_\_\_\_\_

**APPROVED:**

By: \_\_\_\_\_  
 OWNER (Authorized Signature)

Date: \_\_\_\_\_



**SECTION 00 63 13**

**REQUEST FOR INTERPRETATION**

ROBERT E. LEE & ASSOCIATES, INC.  
1250 Centennial Centre Boulevard  
Hobart, WI 54155  
Telephone: (920) 662-9641  
Fax: (920) 662-9141

DATE: \_\_\_\_\_

NAME: \_\_\_\_\_

COMPANY: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

TELEPHONE \_\_\_\_\_ FAX: \_\_\_\_\_

\_\_\_\_\_ Contractor \_\_\_\_\_ Subcontractor \_\_\_\_\_ Vendor

RE: \_\_\_\_\_ Specification Section \_\_\_\_\_ Page \_\_\_\_\_  
\_\_\_\_\_ Plan Sheet/Drawing \_\_\_\_\_ Section/Detail \_\_\_\_\_

QUESTION: \_\_\_\_\_

INTERPRETATION (For Engineer Use): \_\_\_\_\_

- END OF SECTION -

**SECTION 00 63 36**

**FIELD ORDER FORM  
ITEM NO. \_\_\_\_\_**

OWNER CITY OF MARINETTE  
PROJECT MENKAUNEE HARBOR RESTORATION PROJECT  
CONTRACTOR \_\_\_\_\_  
CONTRACT NO. 3775-15-01  
DATE \_\_\_\_\_  
THIS CHANGE IS REQUESTED BY \_\_\_\_\_

DESCRIPTION OF ORDER:

Refer to Drawing Sheets \_\_\_\_\_ Section or Detail \_\_\_\_\_

Refer to Specification Paragraphs \_\_\_\_\_

Will additional drawings be necessary? Yes [ ] No [ ]

It is understood and mutually agreed that this form is to be used only to record minor orders which do not increase or decrease the contract price or change the intent of a specific provision of the contract. Any orders involving change to the contract price or contract requirements must be covered by a formal change order executed by the Owner and the Contractor.

FOR ROBERT E. LEE & ASSOCIATES

FOR CONTRACTOR

FOR OWNER

Date \_\_\_\_\_ Date \_\_\_\_\_ Date \_\_\_\_\_

**SECTION 00 63 49**

**WORK CHANGE DIRECTIVE**

**No.** \_\_\_\_\_

Owner: CITY OF MARINETTE Robert E. Lee & Associates, Inc. Project No. 3775-15-01  
Project: Menekaunee Harbor Restoration Project Contract No. 3775-15-01

Date of Issuance: \_\_\_\_\_

You are directed to proceed with the following change(s):

Description:

Purpose of Work Change Directive:

Attachments:

\_\_\_\_\_  
If Owner or Contractor believe that the above change has affected Contract Price, any Claim for a Change Order based thereon will involve one or more of the following methods as defined in the Contract Documents.

Method of determining change in Contract Price:

- Lump Sum
- Unit Prices
- Cost of the Work

Estimated increase (decrease) in Contract Price:

Estimated increase (decrease) in Contract Times:

\$ \_\_\_\_\_

Substantial Completion: \_\_\_ days;

Ready for final payment: \_\_\_ days.

\_\_\_\_\_  
If the change involves an increase, the estimated amount is not to be exceeded without further authorization.

Acknowledged:

Approved:

By: \_\_\_\_\_  
Robert E. Lee & Associates, Inc.

By: \_\_\_\_\_  
Owner - CITY OF MARINETTE

Date: \_\_\_\_\_

Date: \_\_\_\_\_

CC: Project Manager/Construction Observer  
Norma Miller, REL (Conformed Document Creation)

# SECTION 00 63 63 CHANGE ORDER

No. \_\_\_\_\_

Date of Issuance:	Effective Date:
Project: Menekaunee Harbor Restoration Project	Owner's Contract No.: 3775-15-01
Engineer's Contract No.: 3775-15-01	Contractor:
Date of Contract Start:	Original Contract Amount:

**The Contract Documents are modified as follows upon execution of this Change Order:**

Description:

---



---

**Attachments (list documents supporting change):**

---



---

Reason for Change Order: \_\_\_\_\_ (example: project enhancement)

It is agreed by the Contractor that this Change Order includes any and all costs associated with or resulting from the change(s) ordered herein, including all impact, delays, and acceleration costs. Other than the dollar amount and time allowance listed herein, there shall be no further time or dollar compensation as a result of this Change Order.

CONTRACT PRICE			CONTRACT TIMES (Calendar Days)		
				To Substantial Completion	To Final Completion
Original:	\$0.00	Original:		0	0
Previous C.O.s (Add):	\$0.00	Previous C.O.s (Add/Deduct)		0	0
This C.O. (Add):	\$0.00	This C.O. (Add/Deduct):		0	0
Total CO Value	\$0.00	REVISED:		0	0
Contract Price with all approved Change Orders:	\$0.00	Original Completion Date:	1/1/000	1/1/000	
		Revised Completion Date:	#VALUE!	#VALUE!	

**RECOMMENDED:**

By \_\_\_\_\_ Date \_\_\_\_\_  
 Engineer (company name here)

**ACCEPTED:**

\_\_\_\_\_  
 Contractor (company name here) Date

**APPROVED:**

\_\_\_\_\_  
 Owner (company name here) Date

**APPROVED:**

\_\_\_\_\_  
 Funding Agency (If Applicable) Date

# Change Order

## Instructions

### A. GENERAL INFORMATION

This document was developed to provide a uniform format for handling contract changes that affect Contract Price or Contract Times. Changes that have been initiated by a Work Change Directive must be incorporated into a subsequent Change Order if they affect Price or Times.

Changes that affect Contract Price or Contract Times should be promptly covered by a Change Order. The practice of accumulating Change Orders to reduce the administrative burden may lead to unnecessary disputes.

If Milestones have been listed in the Agreement, any effect of a Change Order thereon should be addressed.

For supplemental instructions and minor changes not involving a change in the Contract Price or Contract Times, a Field Order should be used.

### B. COMPLETING THE CHANGE ORDER FORM

Engineer normally initiates the form, including a description of the changes involved and attachments based upon documents and proposals submitted by Contractor, or requests from Owner, or both.

Once Engineer has completed and signed the form, all copies should be sent to Owner or Contractor for approval, depending on whether the Change Order is a true order to the Contractor or the formalization of a negotiated agreement for a previously performed change. After approval by one contracting party, all copies should be sent to the other party for approval. Engineer should make distribution of executed copies after approval by both parties.

If a change only applies to price or to times, cross out the part of the tabulation that does not apply.

**SECTION 00 65 16**

**CERTIFICATE OF SUBSTANTIAL COMPLETION**

---

---

DATE OF ISSUANCE \_\_\_\_\_

---

---

OWNER CITY OF MARINETTE

CONTRACTOR \_\_\_\_\_

Contract: 3775-15-01

Project: Menekaunee Harbor Restoration Project

---

---

This Certificate of Substantial Completion applies to all Work under the Contract Documents or to the following specified parts thereof:

To \_\_\_\_\_  
CITY OF MARINETTE  
OWNER

And To \_\_\_\_\_  
CONTRACTOR

---

---

The Work to which this Certificate applies has been inspected by authorized representatives of OWNER, CONTRACTOR and ENGINEER, and that Work is hereby declared to be substantially complete in accordance with the Contract Documents on

\_\_\_\_\_  
DATE OF SUBSTANTIAL COMPLETION

A tentative list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include an item in it does not alter the responsibility of CONTRACTOR to complete all the Work in accordance with the Contract Documents. The items in the tentative list shall be completed or corrected by CONTRACTOR within \_\_\_\_ days of the above date of Substantial Completion.

The responsibilities between OWNER and CONTRACTOR for security, operation, safety, maintenance, heat, utilities, insurance and warranties and guarantees shall be as follows:

OWNER: \_\_\_\_\_

---

---

CONTRACTOR: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

The following documents are attached to and made a part of this Certificate:

This certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of CONTRACTOR's obligation to complete the Work in accordance with the Contract Documents.

Executed by ENGINEER on \_\_\_\_\_  
Date

ROBERT E. LEE & ASSOCIATES, INC.  
ENGINEER

By: \_\_\_\_\_  
(Authorized Signature)

CONTRACTOR accepts this Certificate of Substantial Completion on \_\_\_\_\_  
Date

\_\_\_\_\_  
CONTRACTOR

By: \_\_\_\_\_  
(Authorized Signature)

OWNER accepts this Certificate of Substantial Completion on \_\_\_\_\_  
Date

CITY OF MARINETTE  
OWNER

By: \_\_\_\_\_  
(Authorized Signature)

**SECTION 00 65 19**  
**CERTIFICATE OF FINAL COMPLETION**

---

---

DATE OF ISSUANCE \_\_\_\_\_

---

---

OWNER CITY OF MARINETTE  
CONTRACTOR \_\_\_\_\_  
Contract: 3775-15-01  
Project: Menekaunee Harbor Restoration Project

---

---

The Work to which this Certificate applies has been inspected by authorized representatives of OWNER, CONTRACTOR and ENGINEER, and that Work is hereby declared to be completed in accordance with the Contract Documents on

\_\_\_\_\_  
DATE OF FINAL COMPLETION

---

---

Executed by ENGINEER on \_\_\_\_\_  
Date

ROBERT E. LEE & ASSOCIATES, INC.  
ENGINEER

By: \_\_\_\_\_  
(Authorized Signature)

CONTRACTOR accepts this Certificate of Final Completion on \_\_\_\_\_  
Date

\_\_\_\_\_  
CONTRACTOR

By: \_\_\_\_\_  
(Authorized Signature)

OWNER accepts this Certificate of Final Completion on \_\_\_\_\_  
Date

\_\_\_\_\_  
CITY OF MARINETTE  
OWNER

By: \_\_\_\_\_  
(Authorized Signature)

**SECTION 00 65 19.13**

**CONTRACTOR'S AFFIDAVIT**

STATE OF: \_\_\_\_\_

COUNTY OF: \_\_\_\_\_

Before me, the undersigned, a \_\_\_\_\_  
(Notary Public, Justice of the Peace, or Alderman)

in and for said County and State personally appeared \_\_\_\_\_  
(Individual, Partner, or duly authorized

\_\_\_\_\_  
representative of Corporate CONTRACTOR)

who being duly sworn according to law deposes and says that all labor, material, and outstanding claims and indebtedness of whatever nature arising out of the performance of the CONTRACT of the \_\_\_\_\_

\_\_\_\_\_  
CITY OF MARINETTE  
(OWNER)

with \_\_\_\_\_ have been paid in full.

\_\_\_\_\_  
(Individual, Partner, or duly authorized  
representative of Corporate CONTRACTOR)

Sworn to and subscribed before me this \_\_\_\_\_ day of \_\_\_\_\_,  
20\_\_\_\_.

\_\_\_\_\_  
Notary Public

(Seal)

Commission expires: \_\_\_\_\_

**SECTION 00 65 19.16**

**CONTRACTOR'S RELEASE**

KNOW ALL MEN BY THESE PRESENTS THAT: \_\_\_\_\_

\_\_\_\_\_  
(CONTRACTOR)

of \_\_\_\_\_ County and State of \_\_\_\_\_ does hereby acknowledge that

he has received this day of \_\_\_\_\_ an from the \_\_\_\_\_

(OWNER)

the sum of One Dollar (\$1.00) and other valuable consideration in full satisfaction and payment of all sums of money owing, payable and belonging to \_\_\_\_\_

\_\_\_\_\_  
(CONTRACTOR)

by any means whatsoever, for on account of a certain agreement hereinafter called the CONTRACT,

between the said \_\_\_\_\_ CITY OF MARINETTE

(OWNER)

and \_\_\_\_\_

(CONTRACTOR)

dated \_\_\_\_\_.

NOW, THEREFORE, the said \_\_\_\_\_

(CONTRACTOR)

(for myself, my heirs, executors, and administrators) (for itself, its successors and assigns) do by these presents remise, release quit-claim and forever discharge the said \_\_\_\_\_

\_\_\_\_\_  
CITY OF MARINETTE

(OWNER)

its successors and assigns, of and from all claims and demands arising from or in connection with the said CONTRACT dated \_\_\_\_\_ and of and from all, and all manner of action and actions, cause and causes of action and actions, suits, debts, dues duties, sum and sums of money, accounts, reckonings, bond, bills, specialties, covenants, contracts, agreements, promises, variances, damages, judgments, extents, executions, claims and demand, whatsoever in law or equity, or otherwise which against the said \_\_\_\_\_

\_\_\_\_\_  
CITY OF MARINETTE

(OWNER)

its successors and assigns ever had, now have, or which (I, my heirs, executors or administrators) (it, its successors and assigns) hereinafter can, shall or may have for upon or by reason of any matter, cause or thing whatsoever, from the beginning of the world to the date of these presents.

IN WITNESS WHEREOF \_\_\_\_\_  
(CONTRACTOR)

has caused these presents to be duly executed the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

Signed, Sealed, and Delivered  
in the presence of:

\_\_\_\_\_  
(Individual) \_\_\_\_\_ (Seal)

\_\_\_\_\_  
(Partnership Contractor) \_\_\_\_\_ (Seal)

\_\_\_\_\_  
By \_\_\_\_\_ (Seal)  
(Partner)

Attest:

\_\_\_\_\_  
(Seal)

\_\_\_\_\_  
(Secretary) By \_\_\_\_\_ (Seal)  
(President or Vice-President)

(Corporate Seal)

**SECTION 00 65 19.19  
STATEMENT OF SURETY COMPANY**

IN ACCORDANCE with the provisions of the CONTRACT dated \_\_\_\_\_

\_\_\_\_\_ between the \_\_\_\_\_

CITY OF MARINETTE  
(OWNER)

and \_\_\_\_\_  
(CONTRACTOR)

the \_\_\_\_\_  
(SURETY)

SURETY on the Material and Labor Payment BOND of \_\_\_\_\_

\_\_\_\_\_ after a careful examination of the books and records of said CONTRACTOR or after receipt of an affidavit from CONTRACTOR, which examination of affidavit satisfies SURETY that all claims for labor and materials have been satisfactorily settled, hereby approves of the final payment of the said \_\_\_\_\_  
(CONTRACTOR)

and by these presents witnesseth that payment to the CONTRACTOR of the final estimates shall not relieve SURETY of any of its obligations to \_\_\_\_\_, as set forth in the said SURETY COMPANY'S BOND.

IN WITNESS WHEREOF, said SURETY has hereunto set its hand and seal this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

Attest:

(Seal) \_\_\_\_\_ By: \_\_\_\_\_  
President

\_\_\_\_\_  
Note: This statement, if executed by any person other than the President or Vice-President of the Company, must be accompanied by a certificate of even date showing authority conferred upon the person so signing to execute such instruments on behalf of the Company represented.

## **LABELED TAB – GENERAL CONDITIONS**

---

**\*Place labeled tab before Section 00 72 00 or C-700.**

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

**ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE**

and

Issued and Published Jointly by



AMERICAN COUNCIL OF ENGINEERING COMPANIES

ASSOCIATED GENERAL CONTRACTORS OF AMERICA

AMERICAN SOCIETY OF CIVIL ENGINEERS

PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE  
*A Practice Division of the*  
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

Endorsed by



CONSTRUCTION SPECIFICATIONS INSTITUTE

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).

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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 and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. 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 which is evidence of the agreement between Owner and Contractor covering the Work.
  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. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
  5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
  6. *Bidder*—The individual or entity who submits a Bid directly to Owner.
  7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
  8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
  9. *Change Order*—A document recommended by Engineer 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, issued on or after the Effective Date of the Agreement.
  10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
  11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.
15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
19. *Engineer*—The individual or entity named as such in the Agreement.
20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
21. *General Requirements*—Sections of Division 1 of the Specifications.
22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
28. *Notice to Proceed*—A written notice given 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 under the Contract Documents.
29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. *PCBs*—Polychlorinated biphenyls.
31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
32. *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.
33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
39. *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.

40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
41. *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 for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
43. *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 at the Site.
44. *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.
45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *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 Subcontractor.
48. *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 those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
50. *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, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

## 1.02 *Terminology*

A. The words and terms discussed in Paragraph 1.02.B through F 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 Paragraph 9.09 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 14.04 or 14.05).

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. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, "provide" is implied.

- 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. 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 Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

### *2.02 Copies of Documents*

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

### *2.03 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 Agreement 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

Agreement. 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 Agreement, whichever date is earlier.

#### 2.04 *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 the date on which the Contract Times commence to run.

#### 2.05 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), 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 Documents;
  - 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.

#### 2.06 *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 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, 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 instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

#### 2.07 *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 2.05.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 component parts of the Work.

### **ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, 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. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

#### **3.02 *Reference Standards***

- A. Standards, Specifications, Codes, Laws, and Regulations
  1. Reference to standards, specifications, manuals, 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, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement 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, 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 Contract Documents. 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 Contract Documents.

### 3.03 *Reporting and Resolving Discrepancies*

#### A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* If, 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) any standard, specification, manual, or code, or (c) 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 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
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 Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:
  - a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); 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 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:
1. A Field Order;
  2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or
  3. Engineer's written interpretation or clarification.

### 3.05 *Reuse of Documents*

- A. Contractor and any Subcontractor or Supplier 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
  2. 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.
- 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.

### 3.06 *Electronic Data*

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

## **ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS**

### **4.01 *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. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.
- 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 the Work is to be performed 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.

### **4.02 *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 contiguous to the Site; and
  - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "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.

#### 4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed 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 4.02 is materially inaccurate; or
2. is of such a nature as to require a change in the Contract Documents; 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 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer’s Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner’s obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer’s findings and conclusions.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition 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 meet any one or more of the categories described in Paragraph 4.03.A; and
  - 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 Paragraphs 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
  - a. Contractor knew of the existence of such conditions at the time Contractor made a final 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
  - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and

contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

- c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or 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) sustained by Contractor on or in connection with any other project or anticipated project.

#### 4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous 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 shall not be responsible for 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 such information and data;
  - b. locating all Underground Facilities shown or indicated in the Contract Documents;
  - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
  - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, 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 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the

consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

#### 4.05 *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.

#### 4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "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 any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) 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 4.06.E.
- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. 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, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. 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. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. 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: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

- H. 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 a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

## **ARTICLE 5 – BONDS AND INSURANCE**

### *5.01 Performance, Payment, and Other Bonds*

- A. Contractor shall furnish performance and payment bonds, 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 Documents. 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 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds 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 each bond.
- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, 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 requirements of Paragraphs 5.01.B and 5.02.

### *5.02 Licensed Sureties and Insurers*

- A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also

meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

### 5.03 *Certificates of Insurance*

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.
- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.
- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

### 5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which 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:
  - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
  - 2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
  - 3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
  - 4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

- a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
  - b. by any other person for any other reason;
5. 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; and
  6. 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.
- B. The policies of insurance required by this Paragraph 5.04 shall:
1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and 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;
  2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
  3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
  4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
  5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
  6. include completed operations coverage:
    - a. Such insurance shall remain in effect for two years after final payment.
    - b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

## 5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, 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.

## 5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full 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 interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;
  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, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, 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.
  3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
  4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
  5. allow for partial utilization of the Work by Owner;
  6. include testing and startup; and
  7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors,

members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.

- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.
- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

#### 5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies 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 of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their 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 Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (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 as trustee 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 utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.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, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

#### 5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.
- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

#### 5.09 *Acceptance of Bonds and Insurance; Option to Replace*

- A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, 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. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

**ARTICLE 6 – CONTRACTOR'S RESPONSIBILITIES**

6.01 *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. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.
- 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.

6.02 *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. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

### 6.03 *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.
- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, 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.

### 6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 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 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
  - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

### 6.05 *Substitutes and "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 specification or description 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 or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.
  - 1. "*Or-Equal*" Items: If in Engineer's sole discretion 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, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, 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; and
  - 3) it has a proven record of performance and availability of responsive service.
- 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.

2. *Substitute Items:*

- a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.
- b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
- c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.
- d. 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:
  - 1) shall certify that the proposed substitute item will:
    - a) perform adequately the functions and achieve the results called for by the general design,
    - b) be similar in substance to that specified, and
    - c) be suited to the same use as that specified;
  - 2) will state:

- a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
  - b) 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
  - c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
- 3) will identify:
- a) all variations of the proposed substitute item from that specified, and
  - b) available engineering, sales, maintenance, repair, and replacement services; and
- 4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.
- B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.
- C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.
- D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- E. *Engineer's Cost Reimbursement:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. 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.

- F. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.
- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. 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 any right of Owner or Engineer to reject defective Work.
- C. 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. 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 moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.
- F. 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.

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (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 such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

#### 6.07 *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.

## 6.08 *Permits*

- A. Unless otherwise provided in the Supplementary Conditions, 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 opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

## 6.09 *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 knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear 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. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

## 6.10 *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.

## 6.11 *Use of Site and Other Areas*

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

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
  3. 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 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 by or based upon Contractor's performance of the Work.
- B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other 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 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 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 property to stresses or pressures that will endanger it.

#### 6.12 *Record Documents*

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

#### 6.13 *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, 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 owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.
- 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 6.13.A.2 or 6.13.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 (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 for protection of the Work 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 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

#### 6.14 *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.

## 6.15 *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.

## 6.16 *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.

## 6.17 *Shop Drawings and Samples*

- A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

### 1. *Shop Drawings:*

- a. Submit number of copies specified in the General Requirements.
- 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 6.17.D.

### 2. *Samples:*

- a. Submit number of Samples specified in the Specifications.
  - b. 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 6.17.D.
- B. 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. Submittal Procedures:*

1. Before submitting each Shop Drawing or Sample, Contractor shall have:
  - a. reviewed and coordinated each 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 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 and approval of that 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 both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

*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 (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
3. Engineer's review and approval 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 6.17.C.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's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

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.

6.18 *Continuing the Work*

- A. 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, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *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 representation of 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 or the issuance of a notice of acceptability by Engineer;

6. any inspection, test, or approval by others; or
7. any correction of defective Work by Owner.

#### 6.20 *Indemnification*

- A. 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 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 6.20.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 6.20.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.

#### 6.21 *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 law.
- 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, Shop Drawings 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 6.21, 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 6.17.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

## **ARTICLE 7 – OTHER WORK AT THE SITE**

### **7.01 *Related Work at Site***

- A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
  - 1. written notice thereof will be given to Contractor prior to starting any such other work; and
  - 2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. 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. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and

other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

- C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, 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.

#### 7.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:
  - 1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
  - 2. the specific matters to be covered by such authority and responsibility will be itemized; and
  - 3. the extent of such authority and responsibilities will be provided.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

#### 7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

### **ARTICLE 8 – OWNER'S RESPONSIBILITIES**

#### 8.01 *Communications to Contractor*

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

#### 8.02 *Replacement of Engineer*

- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

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

8.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

8.06 *Insurance*

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *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.

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *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.

## 8.12 *Compliance with Safety Program*

- 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 pursuant to Paragraph 6.13.D.

## **ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION**

### 9.01 *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 Documents.

### 9.02 *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 9.09. 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.

### 9.03 *Project Representative*

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. 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.

9.04 *Authorized Variations in Work*

- A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which 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. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

- A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with 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, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

- A. 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 Paragraph 10.05.

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

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability

of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.

- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents 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 14.07.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 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

## 9.10 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

## **ARTICLE 10 – CHANGES IN THE WORK; CLAIMS**

### 10.01 *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 by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

### 10.02 *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 as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

### 10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
  - 1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
  - 2. 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; and
  - 3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

#### 10.04 *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.

#### 10.05 *Claims*

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).
- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
  - 1. deny the Claim in whole or in part;
  - 2. approve the Claim; or
  - 3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.
- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor

invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

## **ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK**

### **11.01 *Cost of the Work***

A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs 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 11.01.B, 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, 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 11.01.

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 5.06.D), 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 telegrams, long distance telephone calls, telephone 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 Contractor is required by the Contract Documents to purchase and maintain.

B. *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 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which 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 Paragraphs 11.01.A.

C. *Contractor's Fee:* When all the Work 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 or when a Claim for an 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 12.01.C.

D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, 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.

## 11.02 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:*

1. Contractor agrees that:
  - a. 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

- b. 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:*

1. 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.

11.03 *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. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.
- 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. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 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; and
  2. there is no corresponding adjustment with respect to any other item of Work; and
  3. Contractor believes that Contractor 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 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES**

12.01 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the

Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for 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, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. *Contractor's Fee:* 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 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
  - b. for costs incurred under Paragraph 11.01.A.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 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
  - d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
  - 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 12.01.C.2.a through 12.01.C.2.e, inclusive.

## 12.02 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

## 12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.
- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, 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 Price or the Contract Times, or both. 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.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is 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 described in this Paragraph 12.03.C.
- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or 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) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

## **ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK**

### *13.01 Notice of Defects*

- A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

### *13.02 Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests 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.

### *13.03 Tests and Inspections*

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
  - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
  - 2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
  - 3. as otherwise specifically provided in the Contract Documents.
- 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 and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

- E. 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.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

#### 13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, 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, furnishing all necessary labor, material, and equipment.
- C. If it is found that the uncovered Work is defective, 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 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 Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
- D. 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, Contractor may make a Claim therefor as provided in Paragraph 10.05.

#### 13.05 *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, 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.

#### 13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. 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 removal (including but not limited to all costs of repair or replacement of work of others).

- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

### 13.07 *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 land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
1. repair such defective land or areas; or
  2. correct such defective Work; or
  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 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. 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) will be paid by Contractor.
- 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 13.07, 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 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

#### 13.08 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. 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) 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 pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

#### 13.09 *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 in accordance with Paragraph 13.06.A, 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, 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 13.09, 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, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, 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 (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) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as

provided in Paragraph 10.05. 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 13.09.

## **ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION**

### *14.01 Schedule of Values*

- A. The Schedule of Values established as provided in Paragraph 2.07.A 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.

### *14.02 Progress Payments*

#### *A. 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 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.

#### *B. Review of Applications:*

1. Engineer will, within 10 days after receipt of each Application for Payment, 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 9.07, 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 Documents; 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 moneys 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 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
- b. the Contract Price has been reduced by Change Orders;
- c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
- d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

*C. Payment Becomes Due:*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

*D. Reduction in Payment:*

1. Owner may refuse to make payment of the full amount recommended by Engineer because:
  - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
  - b. 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;
  - c. there are other items entitling Owner to a set-off against the amount recommended; or
  - d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action 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, when Contractor remedies the reasons for such action.
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 14.02.C.1 and subject to interest as provided in the Agreement.

#### 14.03 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

#### 14.04 *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 (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- 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 tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.
- E. 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 tentative list.

#### 14.05 *Partial Utilization*

- 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. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and 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 14.04.A through D for that part of the Work.
  2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and 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 14.04 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 5.10 regarding property insurance.

#### 14.06 *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 is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

#### 14.07 *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, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:
  - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
  - b. consent of the surety, if any, to final payment;
  - c. a list of all Claims against Owner that Contractor believes are unsettled; and
  - d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) 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.

*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 Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. 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 14.09. 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. Payment Becomes Due:*

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

- A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment

(for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

#### 14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

### **ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION**

#### 15.01 *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 notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

#### 15.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will 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 established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
3. Contractor's repeated disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
    1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);
    2. 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
    3. complete the Work as Owner may deem expedient.
  - C. If Owner proceeds as provided in Paragraph 15.02.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 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) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed 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.
  - D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
  - E. 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. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.
  - F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

### 15.03 *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;
  3. 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) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
  4. reasonable expenses directly attributable to termination.
- B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

#### 15.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) 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 15.03.
- 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 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 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 16 – DISPUTE RESOLUTION**

#### 16.01 *Methods and Procedures*

- A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

- B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.
- C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:
  - 1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or
  - 2. agrees with the other party to submit the Claim to another dispute resolution process; or
  - 3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

## **ARTICLE 17 – MISCELLANEOUS**

### *17.01 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 to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or
  - 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

### *17.02 Computation of Times*

- A. When any period of time is referred to in the Contract Documents 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.

### *17.03 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 Documents. 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.

17.04 *Survival of Obligations*

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

17.05 *Controlling Law*

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

17.06 *Headings*

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

## **LABELED TAB – SUPPLEMENTARY CONDITIONS**

**\*Place labeled tab before Section 00 73 00.**

## SECTION 00 73 00 (C-800)

### SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (EJCDC C-700, 2007 Edition) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions will have the meanings indicated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings indicated below, which are applicable to both the singular and plural thereof.

SC- 1.01.A.17 Add the following language at the end of paragraph 1.01.A.17:

The word Plans used in the specifications shall mean drawings as so defined.

SC-2.02 Delete paragraph A. in its entirety and insert the following in its place:

- A. The Owner shall furnish to Contractor printed copies of the following Conformed documents; up to (3) sets of the ½-size Drawings, (2) sets of the full-size Drawings and (3) Conformed Specifications. Additional copies will be furnished upon request at the cost of reproduction.

SC-2.03.A. Delete the last sentence of paragraph 2.03.A.

SC-5.03.A.,B. Delete paragraphs 5.03.A and B in their entirety and insert the following in its place.

- A. CONTRACTOR shall deliver with the executed Agreement to the OWNER, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which OWNER or any additional insured may reasonably request) which CONTRACTOR is required to purchase and maintain in accordance with Article 5.
- B. Before any work at the site is started, OWNER shall deliver to the CONTRACTOR certificates of insurance (and other evidence of insurance which CONTRACTOR or any additional insured may reasonably request) which is required to purchase and maintain in accordance with Article 5.

SC-4.02 Subsurface and Physical Conditions

Add the following new paragraph(s) immediately after paragraph 4.02.B3:

- 4. In the preparation of Drawings and Specifications, ENGINEER or ENGINEER's Consultants relied upon the following reports of explorations and tests of subsurface conditions at the Site:

NOT APPLICABLE

- 5. Copies of reports and drawings itemized in SC-4.02.4 and SC-4.02.5) if any, that are not included with Bidding Documents may be examined at Robert E. Lee & Associates, Inc., 1250 Centennial Centre Boulevard , Hobart, WI 54155, (920)662-9641 during business hours. These

reports and drawings are not part of the Contract Documents, but the "technical data" contained therein upon which CONTRACTOR may rely as identified and established above are incorporated therein by reference. CONTRACTOR is not entitled to rely upon other information and data utilized by ENGINEER and ENGINEER's consultants in the preparation of Drawings and Specifications.

SC-5.04 Add the following new paragraph immediately after paragraph 5.04.B.6:

7. Will contain waiver of subrogation provisions in accordance with paragraph 5.07.

SC-5.04 Add the following new paragraph immediately after paragraph 5.04.B:

C. The limits of liability for the insurance required by paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation, and related coverages under paragraphs 5.04.A.1 and A.2 of the General Conditions:
  - a. State Statutory
  - b. Applicable Federal (e.g., Longshoreman's) Statutory
  - c. Employer's Liability:
    - 1) Each Accident \$500,000
    - 2) Policy Limit \$1,000,000
    - 3) Each Employee \$500,000
2. Contractor's General Liability under paragraphs 5.04.A.3 through A.6 of the General Conditions which shall include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody and control of Contractor:
  - a. General Aggregate \$2,000,000
  - b. Products - Completed Operations Aggregate \$2,000,000
  - c. Personal and Advertising Injury \$1,000,000
  - d. Each Occurrence (Bodily Injury and Property Damage) \$1,000,000
  - e. Property Damage liability insurance will provide Explosion, Collapse, and Underground coverages where applicable.
  - f. Excess or Umbrella Liability
    - 1) General aggregate \$2,000,000
    - 2) Each occurrence \$2,000,000
3. Automobile Liability under paragraph 5.04.A.6 of the General Conditions:
  - a. Combined Single Limit of \$1,000,000
4. The Contractual Liability coverage required by paragraph 5.04.B.3 of the General Conditions shall be provided by the CONTRACTOR as part of the CONTRACTOR's General Liability coverage.
5. The Owner (and its elected or appointed officials, agents, and employees) and Engineer shall be listed as additional insureds on the Contractor's General Liability policy.

SC-5.06.A. Delete paragraph 5.06.A in its entirety and insert the following in its place:

- A. CONTRACTOR shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof. This insurance shall:
1. Include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER ENGINEER's Consultants and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents and other consultants and subcontractors of any of them each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;
  2. Be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss and damage to the Work, temporary buildings, false work, and materials and equipment in transit and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, 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;
  3. Include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
  4. Cover materials and equipment stored at the Site or at another location that was agreed to in writing by OWNER prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by ENGINEER; and
  5. Allow for partial utilization of the Work by OWNER;
  6. Include testing and startup; and
  7. Be maintained in effect until final payment is made unless otherwise agreed to in writing by OWNER, CONTRACTOR and ENGINEER with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued and 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". 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.
  8. CONTRACTOR shall be responsible for any deductible or self-insured retention.
  9. The policies of insurance required to be purchased and maintained by CONTRACTOR in accordance with this paragraph SC-5.06 shall comply with the requirements of paragraph 5.06.C of the General Conditions.

SC-5.07 Add the following new paragraph immediately after Paragraph 5.07.A:

The Contractor's insurer hereunder waives all rights of subrogation against Owner and Engineer, any right of setoff and counterclaim, and any other right to deduction due to outstanding premiums, whether by attachment or otherwise with respect to insurance required under GC 5.04 and further under the supplementary conditions.

SC-6.02.B Delete paragraph 6.02B in its entirety and insert the following in its place.

- B. Overtime and shift work may be established as a regular procedure by the Contractor with the written permission of the Owner. Such permission may be revoked at any time. No work other than overtime and shift work established as a regular procedure shall be done between the hours of 6:00 P.M. and 7:00 A.M., nor on Saturdays, Sundays, or legal holidays, except such work as is necessary for the proper care and protection of the work already performed or except in case of an emergency.

All costs for overtime incurred by the Engineer for construction observation, except those occurring as a result of overtime and shift work established as a regular procedure, shall be paid by the Contractor. Overtime observation shall include observation required during holidays, Saturdays, Sundays, and any weekday between the hours of 6:00 P.M. and 7:00 A.M. Such costs will include, but will not necessarily be limited to engineering, construction observation or administration, general supervision and other overhead expenses which are directly chargeable to the overtime work. All such charges shall be deducted by the Owner from payments due the Contractor.

SC-6.03 Add the following to 6.03:

- D. The equipment supplier must be an Authorized Distributor or Representative of the equipment being supplied in the designated territory. Authorized OEM is not acceptable.
- E. The equipment supplier shall submit certification of authorization by the equipment manufacturer to perform start-up and warranty repair services.
- F. The equipment supplier shall provide a statement from the manufacturer stating that their design and quality of workmanship is Factory approved and in no way will affect the new warranty provided by the manufacturer.
- G. The equipment supplier shall provide evidence of satisfactory performance on a minimum of ten (10) similar projects of equal service conditions for a minimum period of five (5) years.

SC-6.06.B Add the following language at the end of the second sentence of paragraph 6.06.B.:

Within five days of the Bid opening and before the Notice of Award, the apparent Successful Bidder is required to identify Subcontractors and Suppliers submitted to the ENGINEER and OWNER on the form provided in the Bidding Documents.

SC-6.06.C.3 Add the following sentence:

3. OWNER or ENGINEER may furnish to any such Subcontractor, Supplier, or other individual or entity, to the extent practicable, information about amounts paid to CONTRACTOR on account of Work performed for CONTRACTOR by a particular Subcontractor, Supplier, or other individual or entity.

SC-6.10 Taxes

- B. Waste Treatment Facilities

1. Exemption – Tangible personal property which becomes a component part of an industrial or governmental waste treatment facility is exempt from sales and use tax (sec. 77.54(26), Wis. Stats.).
2. Municipal (Government) Facilities – Construction materials which become a component part of a Wisconsin governmental waste treatment facility may be purchased without tax by contractors pursuant to the standards set forth in sec. Tax 11.11, Wis. Adm. Code. Governmental waste treatment facilities include:
  - a. Wastewater treatment facilities. In general terms, this is everything within the fence, except storm sewers, water supply systems, private domestic wastewater treatment facilities, and collection and discharge systems.
  - b. Sanitary landfills. This includes collection and burner systems, laboratory equipment, maintenance buildings, garages, office buildings, fences, and gates.
  - c. Ground water facilities. These are municipal facilities constructed to treat hazardous or contaminated ground water and include oil and water separators, air strippers, aerators, blowers, filters, carbon units, controls, thermal oxidizers, and pumps. Not included within the exemption are the collection and discharge systems.

It is not necessary for a governmental unit or contractors engaged in constructing a waste treatment facility for a Wisconsin governmental unit to obtain Department of Revenue approval of the governmental unit's waste treatment facility to qualify for the waste treatment facility exemption.

3. Purchases by Contractors and Subcontractors - The sales tax exemption for waste treatment facilities includes the purchases of tangible personal property by a contractor who incorporates these purchases into a waste treatment facility.

The contractor shall certify on an exemption certificate, Form S-211, the intended exempt use of the item and give the Form S-211 to its supplier. Suppliers of construction or repair materials for waste treatment facilities should not charge sales tax on such sales if they accept from the purchaser in good faith an exemption certificate (Form S-211).

Purchases of items, which do not become a part of the waste treatment facility are subject to the tax. This includes items such as industrial gases, form lumber, tunnel shields, and supplies used by the contractor during construction. Payments by a contractor for equipment purchased (or leased) to perform a construction job are also taxable.

SC-6.19.D Add the following:

- D. The warranty period shall be 365 days from the date of substantial completion. All equipment shall be warranted for a period of 365 days from the date of substantial completion or 18 months from the date of delivery, which ever is longer. If the project requires a county right-of-way permit, the contractor shall provide the warranty as stated in the permit.

SC-7.02.A.1 Delete paragraphs 7.02.A. 1-3 in their entirety and insert the following:

1. The CONTRACTOR shall have the authority and be responsible for coordination of the activities among the other prime contractors and subcontractors on the Site to ensure a safe, efficient working environment. This authority covers scheduling delivery of materials, storage of materials, sequencing of construction involving different crafts, resolving interface issues between crafts, scheduling testing, and all other aspects of the Work that do not impact the design or function of the Work.

SC-10.03.A.4 Add the following at the end of paragraph 10.03.A:

4. Change Orders shall be prepared on the form included in the General Requirements.

SC-11.01.A.5.b Add the following sentence: The cost of small tools, \$300 and less in value, and consumables shall be paid by adding 4% of the each employee's base hourly rate to the employee's payroll cost.

SC-11.01.A.5.c Revise the first sentence of the paragraph 11.01.A.5.c. to read as follows: c. Rentals of all construction equipment and machinery, having a value in excess of \$300, and the parts thereof whether rented from CONTRACTOR or others in accordance with rental agreements approved by OWNER with the advise of ENGINEER, and the costs of transportation, loading unloading, assembly, dismantling, and removal thereof.

SC-11.01.B.1 Revise the first sentence of paragraph 11.01.B.1 to read as follows: 1. Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, *project managers*, 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 11.01.A.1 or specifically covered by paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the CONTRACTOR's fee.

SC-11.01.B Add 11.01.B.6 as follows: 6. The cost of company owned autos or trucks assigned to foremen, superintendants or project managers.

SC-11.02.B.1. Add 11.02 B.1.c. as follows: c. Contractor's cost for installation, labor and miscellaneous materials will be paid when specified in the specific allowance item. Payment will be in accordance with GC 11.01 cost of work.

SC-12.01.C.2 Revise the sentence to read: 2. If a fixed fee is not agreed upon, or permitted by the funding agency, then a fee based on the following percentages of the various portions of the Cost of the Work:

SC-12.01.C.2.a Delete paragraphs SC.12.01.C.2.a-c in their entirety and insert the following:

- a. for costs incurred under paragraphs 11.01.A.1 and 11.01.A.2, the CONTRACTOR's fee shall be 15 percent;
- b. for costs incurred under paragraph 11.01.A.3, the CONTRACTOR's fee shall be 20 percent. The percentage adjustment for 11.01.A.3 shall include full compensation for general overhead and profit for the subcontractors and the CONTRACTOR's administrative costs including general supervision, overhead, profit, and any other expense required for the CONTRACTOR to administer the services of one of the subcontractors.

SC-14.02.A.1. Revise the first sentence of paragraph 14.02.A.1 to read as follows: 1. At least 10 days before the date established 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.

SC-14.02.A.2. Delete this paragraph in its entirety and insert the following in its place:

2. Beginning with the second Application for Payment, each application shall include a partial waiver of lien from all subcontractors and suppliers for Work provided to discharge Contractor's legitimate obligations associated with prior Applications for Payments.

SC-14.02.C.1 Revise the first sentence of paragraph 14.02.C.1 to read as follows: 1. Thirty days after approval of the Application for Payment by the OWNER, the amount recommended by the engineer will (subject to the provisions of paragraph 14.02.D) become due, and when due will be paid by OWNER to CONTRACTOR.

SC-14.07.A.2.(i) Revise the following language at the end of (a) of paragraph 14.07.A.2:

- (a) all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by subparagraph 5.04.B.6. and such other data and schedules as ENGINEER may reasonably require.

SC-17.07 Add the following paragraph 17.07:

17.07 Wage Rates

- A A copy of the State of Wisconsin Dept. of Workforce Development (DWD) prevailing Wage Rates and Davis Bacon General Decision No. WI150015 for this project have been included. The Contractor shall pay the higher of the applicable wage rates.
- B The Contractor shall comply with all applicable federal, state and local rules and regulations regarding the posting, certification, and filing of Wage Rates paid to employees.
- C The wage rates for this project are provided in the Contract Documents.
- D If the Contractor finds it necessary to employ any person in a trade or occupation not classified in the wage determinations, the Contractor shall obtain approved wage rates for such trades and occupations from the State of Wisconsin Department of Workforce Development and the U. S. Department of Labor.

- END OF SECTION -

## **LABELED TAB –WAGE RATES**

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**\*Place labeled tab JUST AFTER Section 00 73 00 AND BEFORE any wage rate information from State of Wisconsin, Federal Davis Bacon.**

# **WAGE RATES—Dept. of Workforce Development**

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State of Wisconsin Department of Workforce Development Equal Rights Division	<b>DEPARTMENTAL ORDER</b>
<b>ISSUE DATE:</b> 5/13/2015	
<b>PROJECT:</b>	
MENEKAUNEE HARBOR RESTORATION PROJECT MARINETTE CITY, MARINETTE COUNTY, WI Determination No. 201501638 [Owner Project No. 3775-15-01]	
<b>PROJECT OWNER:</b>	<b>REQUESTER:</b>
BRIAN R MILLER, DIRECTOR OF PUBLIC WORKS CITY OF MARINETTE 1905 HALL AVE MARINETTE, WI 54143	JARED G. SCHMIDT, P.E., CIVIL/MUNICIPAL ENGINEERING MANAGE ROBERT E. LEE & ASSOCIATES, INC. 1250 CENTENNIAL CENTRE BOULEVARD HOBART, WI 54158995
<b>ADDITIONAL CONTACT:</b>	<b>NOTE:</b> The Requester must provide a copy of this Project Determination and enclosures to the Project Owner and Additional Contact.
<p>The department received an application for prevailing wage rate determination for the above-captioned project. The department conducted a survey to determine the prevailing wage rate for the trade(s) or occupation(s) needed to complete the project. The survey's findings appear in the attached project determination.</p> <p>If you believe that the wage rate for any trade or occupation does not accurately reflect the prevailing wage rate in the city, village or town where the project is located, you may ask the department to conduct an administrative review of such wage rate. You must submit this request in writing within 30 days from the date indicated above. Additionally, your request must include wage rate information from at least three similar projects in the city, village or town where the proposed project is located and on which some work has been performed by the contested trade(s) during the current survey period and was previously considered by the department in issuing the attached determination. See DWD 290.10 of the Wisconsin Administrative Code and either s. 66.0903(3)(br), Stats., or s. 103.49(3)(c), Stats., for a complete explanation of the administrative review process.</p> <p>Enclosures</p>	
<p>It is hereby ordered that the prevailing wage rates set forth in the attached project determination shall only be applicable to the above referenced project. This order is a <b>FINAL ORDER</b> of the department unless a timely request for an administrative review is filed with the department.</p> <p>ISSUED BY:</p> <p style="text-align: center;">         Equal Rights Division          Labor Standards Bureau          Construction Wage Standards Section          P.O. Box 8928, Madison, WI 53708-8928          (608)266-6861       </p> <p style="text-align: center;">         Web Site: <a href="http://dwd.wisconsin.gov/er/">http://dwd.wisconsin.gov/er/</a> </p>	

**PREVAILING WAGE RATE DETERMINATION**

Issued by the State of Wisconsin  
Department of Workforce Development  
Pursuant to s. 66.0903, Wis. Stats.  
Issued On: 5/13/2015

**DETERMINATION NUMBER:** 201501638

**EXPIRATION DATE:** Prime Contracts MUST Be Awarded or Negotiated On Or Before 12/31/2015. If NOT, You MUST Reapply.

**PROJECT NAME:** MENEKAUNEE HARBOR RESTORATION PROJECT  
PROJECT NO: 3775-15-01

**PROJECT LOCATION:** MARINETTE CITY, MARINETTE COUNTY, WI

**CONTRACTING AGENCY:** CITY OF MARINETTE

<b>CLASSIFICATION:</b>	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: <a href="http://dwd.wisconsin.gov/er/prevailing_wage_rate/Dictionary/dictionary_main.htm">dwd.wisconsin.gov/er/prevailing_wage_rate/Dictionary/dictionary_main.htm</a> .
<b>OVERTIME:</b>	<p>Time and one-half must be paid for all hours worked:</p> <ul style="list-style-type: none"><li>- over 10 hours per day on prevailing wage projects</li><li>- over 40 hours per calendar week</li><li>- Saturday and Sunday</li><li>- 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;</li><li>- The day before if January 1, July 4 or December 25 falls on a Saturday;</li><li>- The day following if January 1, July 4 or December 25 falls on a Sunday.</li></ul> <p>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.</p> <p>A DOT Premium (discussed below) may supersede this time and one-half requirement.</p>
<b>FUTURE INCREASE:</b>	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.
<b>PREMIUM PAY:</b>	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.
<b>DOT PREMIUM:</b>	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.
<b>APPRENTICES:</b>	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.
<b>SUBJOURNEY:</b>	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.

<b>BUILDING OR HEAVY CONSTRUCTION</b>
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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.

<b>SKILLED TRADES</b>
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<u>CODE</u>	<u>TRADE OR OCCUPATION</u>	<u>HOURLY BASIC RATE OF PAY</u>	<u>HOURLY FRINGE BENEFITS</u>	<u>TOTAL</u>
		\$	\$	\$
101	Acoustic Ceiling Tile Installer Future Increase(s): Add \$1.42/hr on 6/1/2015; Add \$1.42/hr on 6/1/2016.	32.72	16.00	48.72
102	Boilermaker Future Increase(s): Add \$1.50/hr. on 01/01/2016	33.35	28.24	61.59
103	Bricklayer, Blocklayer or Stonemason Future Increase(s): Add \$1.40 on 06/01/2015; Add \$1.45 on 06/06/2016 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.	31.55	18.26	49.81
104	Cabinet Installer Future Increase(s): Add \$1.42/hr on 6/1/2015; Add \$1.42/hr on 6/1/2016.	32.72	16.00	48.72
105	Carpenter Future Increase(s): Add \$1.42/hr on 6/1/2015; Add \$1.42/hr on 6/1/2016. 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.	32.72	16.00	48.72
106	Carpet Layer or Soft Floor Coverer Future Increase(s): Add \$1.42/hr on 6/1/2015; Add \$1.42/hr on 6/1/2016.	32.72	16.00	48.72
107	Cement Finisher Future Increase(s): Add \$1.40 on 06/01/2015; Add \$1.45 on 06/06/2016	31.55	18.26	49.81
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.	29.32	17.66	46.98
110	Elevator Constructor	43.84	27.10	70.94

<b>Fringe Benefits Must Be Paid On <u>All</u> Hours Worked</b>		<b>HOURLY BASIC RATE OF PAY</b>	<b>HOURLY FRINGE BENEFITS</b>	<b>TOTAL</b>
<b>CODE</b>	<b>TRADE OR OCCUPATION</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>
111	Fence Erector	23.73	19.09	42.82
112	Fire Sprinkler Fitter	37.53	18.51	56.04
113	Glazier	27.24	15.57	42.81
114	Heat or Frost Insulator	33.53	26.75	60.28
115	Insulator (Batt or Blown) Future Increase(s): Add \$1.42/hr on 6/1/2015; Add \$1.42/hr on 6/1/2016.	32.72	16.00	48.72
116	Ironworker Future Increase(s): 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.	29.27	23.97	53.24
117	Lather	31.40	15.90	47.30
118	Line Constructor (Electrical)	39.50	16.07	55.57
119	Marble Finisher	19.14	0.00	19.14
120	Marble Mason	30.85	17.61	48.46
121	Metal Building Erector	24.00	0.69	24.69
122	Millwright Future Increase(s): Add \$1.47/hr on 6/1/2015; Add \$1.47/hr on 6/1/2016.	34.44	16.07	50.51
123	Overhead Door Installer	27.46	1.98	29.44
124	Painter	21.50	9.37	30.87
125	Pavement Marking Operator	30.00	0.00	30.00
126	Piledriver Future Increase(s): Add \$1.44/hr on 6/1/2015; Add \$1.44/hr on 6/1/2016. 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.	33.24	16.00	49.24
127	Pipeline Fuser or Welder (Gas or Utility)	30.83	20.89	51.72
129	Plasterer Future Increase(s): Add \$1.40 on 06/01/2015; Add \$1.45 on 06/06/2016	31.55	18.26	49.81
130	Plumber Future Increase(s): Add \$1.55 on 6/1/15; Add \$1.55 on 6/1/16	34.86	16.33	51.19

<b>Fringe Benefits Must Be Paid On <u>All</u> Hours Worked</b>				
<b>CODE</b>	<b>TRADE OR OCCUPATION</b>	<b>HOURLY BASIC RATE OF PAY</b>	<b>HOURLY FRINGE BENEFITS</b>	<b>TOTAL</b>
		<b>\$</b>	<b>\$</b>	<b>\$</b>
132	Refrigeration Mechanic Future Increase(s): Add \$1.55 on 6/1/15; Add \$1.55 on 6/1/16	34.86	16.33	51.19
133	Rofer or Waterproofer	19.00	4.00	23.00
134	Sheet Metal Worker Future Increase(s): Add \$1.40/hr on 6/1/15.	29.89	21.43	51.32
135	Steamfitter Future Increase(s): Add \$1.55 on 6/1/15; Add \$1.55 on 6/1/16	34.86	16.33	51.19
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.	22.50	12.74	35.24
138	Temperature Control Installer	33.26	16.33	49.59
139	Terrazzo Finisher	19.14	0.00	19.14
140	Terrazzo Mechanic Future Increase(s): Add \$1.40 on 06/01/2015; Add \$1.45 on 06/01/2016	31.55	18.26	49.81
141	Tile Finisher	24.68	17.61	42.29
142	Tile Setter Future Increase(s): Add \$1.40/hr on 6/01/2015; Add \$1.45/hr on 6/06/2016.	31.55	18.26	49.81
143	Tuckpointer, Caulker or Cleaner Future Increase(s): Add \$1.35on 06/01/2015; Add \$1.45 on 06/01/2016 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.	34.28	18.48	52.76
144	Underwater Diver (Except on Great Lakes)	35.40	15.90	51.30
146	Well Driller or Pump Installer	25.32	15.65	40.97
147	Siding Installer	29.35	20.77	50.12
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	30.16	15.11	45.27
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	31.60	26.76	58.36
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	27.65	14.49	42.14
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	27.83	15.01	42.84
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.90	9.83	31.73

**TRUCK DRIVERS**

<b>Fringe Benefits Must Be Paid On <u>All</u> Hours Worked</b>		<b>HOURLY BASIC RATE OF PAY</b>	<b>HOURLY FRINGE BENEFITS</b>	<b>TOTAL</b>
<b>CODE</b>	<b>TRADE OR OCCUPATION</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>
201	Single Axle or Two Axle	24.37	14.58	38.95
203	Three or More Axle	24.00	5.77	29.77
204	Articulated, Euclid, Dumptor, Off Road Material Hauler Future Increase(s): Add \$1.60/hr on 6/2/2015; Add \$1.60/hr on 6/3/2016.	33.69	19.78	53.47
205	Pavement Marking Vehicle	20.85	11.02	31.87
207	Truck Mechanic	24.00	5.77	29.77

**LABORERS**

<b>Fringe Benefits Must Be Paid On <u>All</u> Hours Worked</b>		<b>HOURLY BASIC RATE OF PAY</b>	<b>HOURLY FRINGE BENEFITS</b>	<b>TOTAL</b>
<b>CODE</b>	<b>TRADE OR OCCUPATION</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>
301	General Laborer Future Increase(s): Add \$1.35/hr eff. 06/01/2015; Add \$1.25/hr eff. 06/06/2016 Premium Increase(s): Add \$1.00/hr for certified welder and pipelayer; Add \$.25/hr for mason tender	24.22	15.12	39.34
302	Asbestos Abatement Worker	18.00	0.00	18.00
303	Landscaper	16.46	0.00	16.46
310	Gas or Utility Pipeline Laborer (Other Than Sewer and Water)	20.35	14.14	34.49
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	18.33	8.92	27.25
314	Railroad Track Laborer	17.00	2.96	19.96
315	Final Construction Clean-Up Worker	28.31	9.66	37.97

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

<b>Fringe Benefits Must Be Paid On <u>All</u> Hours Worked</b>				
<b>CODE</b>	<b>TRADE OR OCCUPATION</b>	<b>HOURLY BASIC RATE OF PAY</b>	<b>HOURLY FRINGE BENEFITS</b>	<b>TOTAL</b>
		\$	\$	\$
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). Future Increase(s): Add \$1.60/hr on 6/2/2015; Add \$1.60/hr on 6/3/2016.	33.69	19.78	53.47
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). Future Increase(s): Add \$1.60/hr on 6/2/2015; Add \$1.60/hr on 6/3/2016.	33.69	19.78	53.47
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. Future Increase(s): Add \$1.60/hr on 6/2/2015; Add \$1.60/hr on 6/3/2016.	33.69	19.78	53.47
504	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	41.65	21.71	63.36
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

<b>Fringe Benefits Must Be Paid On <u>All</u> Hours Worked</b>				
<b>CODE</b>	<b>TRADE OR OCCUPATION</b>	<b>HOURLY BASIC RATE OF PAY</b>	<b>HOURLY FRINGE BENEFITS</b>	<b>TOTAL</b>
		<b>\$</b>	<b>\$</b>	<b>\$</b>
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.	35.72	17.85	53.57
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.	35.46	20.40	55.86

**HEAVY EQUIPMENT OPERATORS  
EXCLUDING SITE PREPARATION, UTILITY, PAVING LANDSCAPING WORK**

<b>Fringe Benefits Must Be Paid On <u>All</u> Hours Worked</b>				
<b>CODE</b>	<b>TRADE OR OCCUPATION</b>	<b>HOURLY BASIC RATE OF PAY</b>	<b>HOURLY FRINGE BENEFITS</b>	<b>TOTAL</b>
		<b>\$</b>	<b>\$</b>	<b>\$</b>
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. Future Increase(s): Add \$1.60/hr on 6/2/2015; Add \$1.60/hr on 6/3/2016. 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.	36.67	19.78	56.45
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). Future Increase(s): Add \$1.60/hr on 6/2/2015; Add \$1.60/hr on 6/3/2016. Premium Increase(s): Add \$.25/hr for all >45 Ton lifting capacity cranes.	35.42	19.78	55.20
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). Future Increase(s): Add \$1.60/hr on 6/2/2015; Add \$1.60/hr on 6/3/2016.	34.22	19.78	54.00

<b>Fringe Benefits Must Be Paid On <u>All</u> Hours Worked</b>		<b>HOURLY BASIC RATE OF PAY</b>	<b>HOURLY FRINGE BENEFITS</b>	<b>TOTAL</b>
<b>CODE</b>	<b>TRADE OR OCCUPATION</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>
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). Future Increase(s): Add \$1.60/hr on 6/2/2015; Add \$1.60/hr on 6/3/2016.	33.69	19.78	53.47
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. Future Increase(s): Add \$1.60/hr on 6/2/2015; Add \$1.60/hr on 6/3/2016.	31.62	19.78	51.40
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. Future Increase(s): Add \$1.60/hr on 6/2/2015; Add \$1.60/hr on 6/3/2016.	30.99	19.78	50.77
514	Gas or Utility Pipeline, Except Sewer & Water (Primary Equipment). Future Increase(s): Add \$1/hr on 6/1/2015; Add \$1/hr on 5/30/2016.	36.34	22.14	58.48
515	Gas or Utility Pipeline, Except Sewer & Water (Secondary Equipment). Future Increase(s): Add \$1.65/hr on 6/1/2015.	33.12	19.35	52.47
516	Fiber Optic Cable Equipment	28.89	17.95	46.84



<b>SEWER, WATER OR TUNNEL CONSTRUCTION</b>
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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).

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**SKILLED TRADES**

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<b>CODE</b>	<b>TRADE OR OCCUPATION</b>	<b>Fringe Benefits Must Be Paid On <u>All</u> Hours Worked</b>		
		<b>HOURLY BASIC RATE OF PAY</b>	<b>HOURLY FRINGE BENEFITS</b>	<b>TOTAL</b>
		\$	\$	\$
103	Bricklayer, Blocklayer or Stonemason	30.85	17.61	48.46
105	Carpenter Future Increase(s): Add \$1.50/hr on 6/1/2015; Add \$1.65/hr on 6/1/2016. 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.	34.13	20.61	54.74
107	Cement Finisher Future Increase(s): 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.	35.18	16.78	51.96
109	Electrician	47.76	0.00	47.76
111	Fence Erector	23.73	19.09	42.82
116	Ironworker	31.50	20.01	51.51
118	Line Constructor (Electrical)	39.50	16.07	55.57
125	Pavement Marking Operator	30.00	0.00	30.00
126	Piledriver	31.90	15.90	47.80
130	Plumber	21.50	0.00	21.50
135	Steamfitter	33.26	16.28	49.54
137	Teledata Technician or Installer	22.25	12.24	34.49
143	Tuckpointer, Caulker or Cleaner	33.76	17.82	51.58
144	Underwater Diver (Except on Great Lakes)	35.40	15.90	51.30
146	Well Driller or Pump Installer	25.32	15.65	40.97
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	35.55	15.57	51.12

<b>Fringe Benefits Must Be Paid On <u>All</u> Hours Worked</b>		<b>HOURLY BASIC RATE OF PAY</b>	<b>HOURLY FRINGE BENEFITS</b>	<b>TOTAL</b>
<b>CODE</b>	<b>TRADE OR OCCUPATION</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	31.60	15.19	46.79
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	27.65	13.44	41.09
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	25.68	13.28	38.96
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.75	12.97	34.72

**TRUCK DRIVERS**

<b>Fringe Benefits Must Be Paid On <u>All</u> Hours Worked</b>		<b>HOURLY BASIC RATE OF PAY</b>	<b>HOURLY FRINGE BENEFITS</b>	<b>TOTAL</b>
<b>CODE</b>	<b>TRADE OR OCCUPATION</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>
201	Single Axle or Two Axle Future Increase(s): 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.	25.18	18.31	43.49
203	Three or More Axle	19.50	5.17	24.67
204	Articulated, Euclid, Dumptor, Off Road Material Hauler	32.89	18.96	51.85
205	Pavement Marking Vehicle	20.85	11.02	31.87
207	Truck Mechanic	19.50	5.17	24.67

**LABORERS**

<b>Fringe Benefits Must Be Paid On <u>All</u> Hours Worked</b>		<b>HOURLY BASIC RATE OF PAY</b>	<b>HOURLY FRINGE BENEFITS</b>	<b>TOTAL</b>
<b>CODE</b>	<b>TRADE OR OCCUPATION</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>
301	General Laborer Future Increase(s): Add \$1.35/hr eff. 06/01/2015; Add \$1.25/hr eff. 06/06/2016 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.	26.09	15.13	41.22
303	Landscaper	39.43	0.00	39.43
304	Flagperson or Traffic Control Person	31.95	0.00	31.95
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	18.33	8.92	27.25
314	Railroad Track Laborer	17.00	2.96	19.96

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

<b>Fringe Benefits Must Be Paid On <u>All</u> Hours Worked</b>		<b>HOURLY BASIC RATE OF PAY</b>	<b>HOURLY FRINGE BENEFITS</b>	<b>TOTAL</b>
<b>CODE</b>	<b>TRADE OR OCCUPATION</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>
521	<p>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 &amp;/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.</p> <p>Future Increase(s): Add \$1.55/hr on 6/1/2015.</p> <p>Premium Increase(s): Add \$.25/hr for operating tower crane.</p>	37.24	20.10	57.34
522	<p>Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. &amp; 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 &amp; Distributor; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &amp;/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. &amp; Under; Dredge (NOT Performing Work on the Great Lakes); Milling Machine; Skid Rig; Telehandler; Traveling Crane (Bridge Type).</p> <p>Future Increase(s): Add \$1.60/hr on 6/2/2015; Add \$1.60/hr on 6/3/2016.</p>	34.22	19.78	54.00
523	<p>Air Track, Rotary or Percussion Drilling Machine &amp;/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 &amp; Under), Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb &amp; 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).</p> <p>Future Increase(s): Add \$1.60/hr on 6/2/2015; Add \$1.60/hr on 6/3/2016.</p>	33.69	19.78	53.47

<b>Fringe Benefits Must Be Paid On <u>All</u> Hours Worked</b>		<b>HOURLY BASIC RATE OF PAY</b>	<b>HOURLY FRINGE BENEFITS</b>	<b>TOTAL</b>
<b>CODE</b>	<b>TRADE OR OCCUPATION</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>
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.	30.82	18.96	49.78
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.	50.50	0.00	50.50
526	Boiler (Temporary Heat); Forklift; Greaser; Oiler.	30.19	18.96	49.15
527	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	41.65	21.71	63.36
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.	41.65	21.71	63.36
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.	35.72	17.85	53.57
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.	35.46	20.40	55.86

<b>LOCAL STREET OR MISCELLANEOUS PAVING CONSTRUCTION</b>
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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).

<b>SKILLED TRADES</b>
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<b>CODE</b>	<b>TRADE OR OCCUPATION</b>	<b>HOURLY BASIC RATE OF PAY</b>	<b>HOURLY FRINGE BENEFITS</b>	<b>TOTAL</b>
		\$	\$	\$
103	Bricklayer, Blocklayer or Stonemason	30.85	17.61	48.46
105	Carpenter Future Increase(s): Add \$1.42/hr on 6/1/2015; Add \$1.42/hr on 6/1/2016. 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.	32.72	16.00	48.72
107	Cement Finisher	26.00	18.60	44.60
109	Electrician	32.04	23.38	55.42
111	Fence Erector	23.73	19.09	42.82
116	Ironworker	28.72	23.47	52.19
118	Line Constructor (Electrical)	39.50	16.07	55.57
124	Painter	21.50	9.37	30.87
125	Pavement Marking Operator	30.00	0.00	30.00
126	Piledriver	31.90	15.90	47.80
133	Rofer or Waterproofer	19.00	4.00	23.00
137	Teledata Technician or Installer	22.25	12.24	34.49
143	Tuckpointer, Caulker or Cleaner	33.76	17.82	51.58
144	Underwater Diver (Except on Great Lakes)	35.40	15.90	51.30
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	35.55	15.57	51.12
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	31.60	15.19	46.79
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	27.65	13.44	41.09
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	25.68	13.28	38.96
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.75	12.97	34.72

**TRUCK DRIVERS**

<b>Fringe Benefits Must Be Paid On <u>All</u> Hours Worked</b>		<b>HOURLY BASIC RATE OF PAY</b>	<b>HOURLY FRINGE BENEFITS</b>	<b>TOTAL</b>
<b>CODE</b>	<b>TRADE OR OCCUPATION</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>
201	Single Axle or Two Axle Future Increase(s): 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.	25.18	18.31	43.49
203	Three or More Axle	19.50	1.53	21.03
204	Articulated, Euclid, Dumptor, Off Road Material Hauler Future Increase(s): Add \$1.60/hr on 6/2/2015; Add \$1.60/hr on 6/3/2016.	33.69	19.78	53.47
205	Pavement Marking Vehicle	20.85	11.02	31.87
206	Shadow or Pilot Vehicle	24.37	17.77	42.14
207	Truck Mechanic	19.50	1.53	21.03

**LABORERS**

<b>Fringe Benefits Must Be Paid On <u>All</u> Hours Worked</b>		<b>HOURLY BASIC RATE OF PAY</b>	<b>HOURLY FRINGE BENEFITS</b>	<b>TOTAL</b>
<b>CODE</b>	<b>TRADE OR OCCUPATION</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>
301	General Laborer	20.00	2.39	22.39
303	Landscaper Future Increase(s): Add \$1.05/hr eff. 06/01/2015; Add \$1.00/hr eff. 06/01/2016; Add \$1.00/hr eff. 06/01/2017 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 \$1.25/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).	30.13	15.14	45.27
304	Flagperson or Traffic Control Person	25.67	12.66	38.33
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	18.33	8.92	27.25
314	Railroad Track Laborer	17.00	2.96	19.96

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

<b>Fringe Benefits Must Be Paid On <u>All</u> Hours Worked</b>		<b>HOURLY BASIC RATE OF PAY</b>	<b>HOURLY FRINGE BENEFITS</b>	<b>TOTAL</b>
<b>CODE</b>	<b>TRADE OR OCCUPATION</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>
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 \$1.25/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: <a href="http://www.dot.wi.gov/business/civilrights/laborwages/pwc.htm">http://www.dot.wi.gov/business/civilrights/laborwages/pwc.htm</a> .	37.72	21.15	58.87
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 \$1.25/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: <a href="http://www.dot.wi.gov/business/civilrights/laborwages/pwc.htm">http://www.dot.wi.gov/business/civilrights/laborwages/pwc.htm</a> .	37.22	21.15	58.37

<b>Fringe Benefits Must Be Paid On <u>All</u> Hours Worked</b>		<b>HOURLY BASIC RATE OF PAY</b>	<b>HOURLY FRINGE BENEFITS</b>	<b>TOTAL</b>
<b>CODE</b>	<b>TRADE OR OCCUPATION</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>
543	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.	35.72	17.85	53.57
544	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. Future Increase(s): 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: <a href="http://www.dot.wi.gov/business/civilrights/laborwages/pwc.htm">http://www.dot.wi.gov/business/civilrights/laborwages/pwc.htm</a> .	36.46	21.15	57.61
545	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.	35.17	20.40	55.57
546	Fiber Optic Cable Equipment.	28.89	17.95	46.84

<b>Fringe Benefits Must Be Paid On <u>All</u> Hours Worked</b>				
<b>CODE</b>	<b>TRADE OR OCCUPATION</b>	<b>HOURLY BASIC RATE OF PAY</b>	<b>HOURLY FRINGE BENEFITS</b>	<b>TOTAL</b>
		<b>\$</b>	<b>\$</b>	<b>\$</b>
547	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	41.65	21.71	63.36
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.	41.65	21.71	63.36
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.	35.72	17.85	53.57
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.	35.46	20.40	55.86

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

<b>Fringe Benefits Must Be Paid On <u>All</u> Hours Worked</b>				
<b>CODE</b>	<b>TRADE OR OCCUPATION</b>	<b>HOURLY BASIC RATE OF PAY</b>	<b>HOURLY FRINGE BENEFITS</b>	<b>TOTAL</b>
		<b>\$</b>	<b>\$</b>	<b>\$</b>
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.	36.72	20.40	57.12
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 \$1.25/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: <a href="http://www.dot.wi.gov/business/civilrights/laborwages/pwc.htm">http://www.dot.wi.gov/business/civilrights/laborwages/pwc.htm</a> .	37.22	21.15	58.37

<b>Fringe Benefits Must Be Paid On <u>All</u> Hours Worked</b>		<b>HOURLY BASIC RATE OF PAY</b>	<b>HOURLY FRINGE BENEFITS</b>	<b>TOTAL</b>
<b>CODE</b>	<b>TRADE OR OCCUPATION</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>
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.	21.00	6.77	27.77
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.	22.00	6.26	28.26
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 \$1.25/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: <a href="http://www.dot.wi.gov/business/civilrights/laborwages/pwc.htm">http://www.dot.wi.gov/business/civilrights/laborwages/pwc.htm</a> .	36.17	21.15	57.32
556	Fiber Optic Cable Equipment.	27.89	17.20	45.09

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

The documents following the Prevailing Wage Rate Determination consist of eighteen pages (including this one) of various forms/documents that will be used throughout the completion of the project. The chart below lists the form number, form/document name, the party who uses the document, and the document's number of pages. If you have any questions regarding these forms please call the Prevailing Wage Office at (608)266-6861.

ERD Form Number	Form Name	Party Who Uses the Form	Pages
	Prevailing Wage - Public Entity Project Owners	Explanation of project owner responsibilities	2
16056	Post the White Sheet	Contracting agency	1
10908	Consolidated List of Debarred Contractors	Any party contracting someone to complete work on a prevailing wage project	3
	Prevailing Wage – Contractors	Explanation of contractor responsibilities	2
7777	Disclosure of Ownership	Contractors that meet the criteria set out in (3)(A)&(B) of the form	1
5724	Prime Contractor Affidavit of Compliance	Prime contractor files with contracting agency upon completion of the work before receiving final payment	2
10584	Agent or Subcontractor Affidavit of Compliance	Subcontractors file with their awarding contractor upon completion of their work on the project before receiving final payment	2
10880	Request to Employ Subjourneyperson	Contractors wishing to employ a subjourneyperson(s)	1
	Additional General Prevailing Wage Law Information	General information for public entity or any other interested party	3

10/01/2014

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## PREVAILING WAGE – Public Entity Project Owners

Any public works project that has a total estimated project cost that equals or exceeds single-trade or multiple-trade project thresholds requires a prevailing wage rate determination issued by the Department of Workforce Development (DWD). Public works include erecting, constructing, remodeling, repairing, demolishing, alterations, painting and decorating projects for a local governmental unit or state agency. State law excludes minor service or maintenance work, warranty work, or work under a supply-and-installation contract. There is a statutory definition for most of these exclusions. The prevailing wage law that applies to local governmental units is §66.0903, Wis. Stats. The prevailing wage law that applies to state agencies is §103.49, Wis. Stats. The applicable administrative rules for all public entities are DWD 290 and DWD 294, Wis. Adm. Code.

### Thresholds

- A “single-trade project of public works” means a project in which a single trade accounts for 85% or more of the total labor cost of the project. The single trade threshold is \$48,000.
- A “multiple-trade project of public works” means a project in which no single trade accounts for 85% or more of the total labor cost of the project.
- (a) The multiple-trade threshold is \$100,000, unless a municipality falls under the description in (b).
  - (b) The multiple-trade threshold of \$234,000 applies to public works projects erected, constructed, repaired, remodeled, or demolished by a private contractor for •a city or village with a population less than 2500 or •a town.

A local governmental unit or state agency that has a public works project that equals or exceeds the prevailing wage thresholds must do all of the following:

- Request a prevailing wage rate determination for the project from DWD at least 30 days before soliciting bids or negotiating contracts. An Application for Prevailing Wage Rate Determination is available on the DWD website: [http://dwd.wisconsin.gov/er/prevailing\\_wage\\_rate/default.htm](http://dwd.wisconsin.gov/er/prevailing_wage_rate/default.htm)  
To avoid waiting for a project determination use the on-line application system that permits the user to generate a determination immediately and save all documents in PDF form to the user’s computer. Use this project determination on line application at the following address:

[http://dwd.wisconsin.gov/er/prevaling\\_wage\\_rate/pw\\_online\\_determinations.htm](http://dwd.wisconsin.gov/er/prevaling_wage_rate/pw_online_determinations.htm)

- Tell potential contractors the project is subject to state prevailing wage law when soliciting bids.
- Include the prevailing wage rate determination in the construction contract, or if there is no written contract, provide a copy of the project determination to each prime contractor.
- Award contracts to contractors who do *not* appear on the “Consolidated List of Debarred Contractors.”
- Notify contractors that they are required to have a written substance abuse testing program in place that fulfills the requirements of §103.503, Wis. Stats., before commencing work on the prevailing wage project.
- Post the prevailing wage rate determination on the project site. (This document is often referred to as “the white sheet.”)
- Notify project contractors that if DWD finds that a contractor violated the prevailing wage law, DWD will assess liquidated damages of 100% of the wages owed to employees.
- Obtain an Affidavit of Compliance from each prime contractor before making final payment for the project.

If the total estimated cost of the project exceeds the prevailing wage thresholds, a local governmental unit or state agency also must obtain a prevailing wage rate determination under the following circumstances:

- when a completed facility is leased, purchased, lease-purchased or otherwise acquired by or dedicated to a public entity in lieu of the public entity contracting for the project,
- when one public entity does work for another public entity,
- when a *private* entity will construct a road, street, bridge, sanitary sewer or water main project and dedicate it to a local governmental unit or the state for its ownership or maintenance (except for some residential subdivisions).

For more information, visit the prevailing wage website: [http://dwd.wisconsin.gov/er/prevaling\\_wage\\_rate/default.htm](http://dwd.wisconsin.gov/er/prevaling_wage_rate/default.htm). For further assistance, call the Equal Rights Division at 608-266-6861 and ask for prevailing wage.

## **POST THE WHITE SHEET**

As the public entity receiving this prevailing wage rate determination, **YOU ARE REQUIRED** by law to post the prevailing wage rate determination (i.e., white sheet) in at least one conspicuous and easily accessible place on the project site that is available to all construction workers. The white sheet must remain posted from the onset of the project until all construction labor on the project has been completed.

[See, Wis. Admin. Code §DWD 290.12(1)]

Posting the white sheet inside the general contractor's trailer does not meet this requirement. That placement is not available/accessible to all workers and is not a location over which you have control.

If you have questions about posting, please call (608)266-6861 and ask for prevailing wage intake.

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>
A-1 Duran Roofing & Insulation Services, Inc.	3700 N Fratney St Milwaukee, WI 53212	11/1/14	10/31/17	1, 2 and 4	2011- 2012	None
Abel, Mike	8095 NW 64 <sup>th</sup> St Miami, FL 33166					
	See, Abel Electric, Inc					
Abel Electric, Inc	3385 Belmar Rd Green Bay, WI 54313	9/1/12	8/31/15	1	2011	None
Arnie Christiansen Mason Contractors, LLC	2304 65 <sup>th</sup> Dr Franksville, WI 53126	9/1/14	8/31/16	1, 2 and 4	2011	None
Atkins, Scott	See, Freedom Insulation, Inc					
Boecker, Roger	See, R-Way Pumping, Inc					
Brechtl, Mark G	See, Ecodec, 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

<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>
Christiansen, Andy	See, Arnie Christiansen Mason Contractors, LLC					
Christiansen, Arnold	See, Arnie Christiansen Mason Contractors, LLC					
Darnick, Gregory L	See, Darnick Trucking, LLC					
Darnick Trucking, LLC	W914 County Rd V Berlin, WI 54923	11/1/14	10/31/15	1, 2 and 4	2012 & 2013	None
Dem/Ex Group, Inc	805 S Adams St Manito, IL 61546	12/1/11	11/30/14	1 and 2	2010	None
Duran, Bernardo	See, A-1 Duran Roofing & Insulation Services and RRS2 Inc					
Ecodec, Inc	5106 Wintergreen Dr Madison, WI 53704	10/1/14	9/30/17	1	2011 & 2012	None
Fisher, Ed &/or Fisher, Rhonda	See, Dem/Ex Group, Inc					
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					
Gjolaj, Ded	See, Horizon Bros Painting Corp					
Horizon Bros Painting Corp	1053 Kendra La Howell, MI 48843	10/1/14	9/30/16	4	2012	None
JT Roofing, Inc	350 Tower Dr Saukville, WI 53080	6/1/12	5/31/15	1, 2 and 4	2007 & 2008	None

<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>
Jinkins, Richard	See, Castlerock Commercial Construction, Inc					
Oden, Cassie	See, A-1 Duran Roofing & Insulation Services and RRS2 Inc					
Ofstie, Darin	See, Precision Excavating and Grading, LLC					
Peret, Robert	See, A-1 Duran Roofing & Insulation Services and RRS2 Inc					
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
RRS2 Inc	133 N Jackson St, #427 Milwaukee, WI 53202 or 1313 N Franklin Pl, #805 Milwaukee, WI 53202	11/1/14	10/31/17	1, 2 and 4	2011- 2012	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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## PREVAILING WAGE – Contractors

Any public works project that has a total estimated project cost that equals or exceeds prevailing wage project thresholds requires a prevailing wage rate determination issued by the Department of Workforce Development (DWD). Public works include erecting, constructing, remodeling, repairing, demolishing, alterations, painting and decorating projects for a local governmental unit or state agency. State law excludes minor service or maintenance work, warranty work, or work under a supply-and-installation contract. There is a statutory definition for most of these exclusions. The prevailing wage laws that apply to local governmental units and their contractors are §§66.0903 and 103.503, Wis. Stats. The prevailing wage laws that apply to state agencies and their contractors are §§103.49 and 103.503, Wis. Stats. The applicable administrative rules for all prevailing wage projects are DWD 290 and DWD 294, Wis. Adm. Code. These laws include provisions that apply to all contractors and subcontractors working on prevailing wage projects.

Any contractor or subcontractor working on a local governmental unit or state agency's public works project that equals or exceeds current prevailing wage project thresholds must do all of the following:

- Receive and review the project's prevailing wage rate determination (i.e., white sheet).
- Tell subcontractors the project is subject to state prevailing wage law and include the prevailing wage rate determination in the construction contract, or if there is no written contract, provide a copy of the project determination to each subcontractor.
- Hire subcontractors who do *not* appear on the "Consolidated List of Debarred Contractors."
- Have a written substance abuse testing program in place that fulfills the requirements of §103.503, Wis. Stats., before commencing work on the project.

- Notify subcontractors that if DWD finds that a contractor or subcontractor violated the prevailing wage law, DWD will assess liquidated damages of 100% of the wages owed to employees.
- Apply to DWD for subjourney wage rates prior to employing these individuals on the project.
- Receive and retain a completed Affidavit of Compliance from each subcontractor brought on to the project before providing final payment to those subcontractors.
- Submit a completed Affidavit of Compliance to the contractor who brought the subcontractor on to the project before receiving final payment for the project.
- Maintain payroll records for 3 years that comply with §§66.0903(10)(a) or 103.49(5)(a), Stats. and DWD 274.06.
- Respond to requests from DWD or the project owner to provide payroll records and/or respond to prevailing wage complaints filed by employees or third parties.

For more information, visit the prevailing wage website: [http://dwd.wisconsin.gov/er/prevailing\\_wage\\_rate/default.htm](http://dwd.wisconsin.gov/er/prevailing_wage_rate/default.htm). For further assistance, call the Equal Rights Division at 608-266-6861 and ask for prevailing wage.

## Disclosure of Ownership

The statutory authority for the use of this form is prescribed in Sections 66.0903(12)(d), 66.0904(10)(d) and 103.49(7)(d), Wisconsin Statutes.

The use of this form is mandatory. The penalty for failing to complete this form is prescribed in Section 103.005(12), Wisconsin Statutes.

Personal information you provide may be used for secondary purposes [Privacy Law, s. 15.04(1) (m), Wisconsin Statutes].

- (1) On the date a contractor submits a bid to or completes negotiations with a state agency, local governmental unit, or developer, investor or owner on a project subject to Section 66.0903, 66.0904 or 103.49, Wisconsin Statutes, the contractor shall disclose to such state agency, local governmental unit, or developer, investor or owner, the name of any "other construction business," which the contractor, or a shareholder, officer or partner of the contractor, owns or has owned within the preceding three (3) years.
- (2) The term "other construction business" means any business engaged in the erection, construction, remodeling, repairing, demolition, altering or painting and decorating of buildings, structures or facilities. It also means any business engaged in supplying mineral aggregate, or hauling excavated material or spoil as provided by Sections 66.0903(3), 66.0904(2), 103.49(2) and 103.50(2), Wisconsin Statutes.
- (3) This form must ONLY be filed, with the state agency project owner, local governmental unit project owner, or developer, investor or owner of a publicly funded private construction project that will be awarding the contract, if **both (A) and (B) are met.**
  - (A) The contractor, or a shareholder, officer or partner of the contractor:
    - (1) Owns at least a 25% interest in the "other construction business," indicated below, on the date the contractor submits a bid or completes negotiations; or
    - (2) Has owned at least a 25% interest in the "other construction business" at any time within the preceding three (3) years.
  - (B) The Wisconsin Department of Workforce Development (DWD) has determined that the "other construction business" has failed to pay the prevailing wage rate or time and one-half the required 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 (3) years.

### Other Construction Business

Business Name			
Street Address or P O Box	City	State	Zip Code
Business Name			
Street Address or P O Box	City	State	Zip Code
Business Name			
Street Address or P O Box	City	State	Zip Code
Business Name			
Street Address or P O Box	City	State	Zip Code

**I hereby state under penalty of perjury that the information, contained in this document, is true and accurate according to my knowledge and belief.**

Print the Name of Authorized Officer			
Authorized Officer Signature	Date Signed		
Corporation, Partnership or Sole Proprietorship Name			
Street Address or P O Box	City	State	Zip Code

**If you have any questions call (608) 266-6861**

## Prime Contractor Affidavit of Compliance With Prevailing Wage Rate Determination

Authorization for this form is provided under Sections 66.0903(9)(c), 66.0904(7)(c) and 103.49(4r)(c) Wisconsin Statutes.

The use of this form is mandatory. The penalty for failing to complete this form is prescribed in Section 103.005(12), Wisconsin Statutes.

Personal information you provide may be used for secondary purposes [Privacy Law, s. 15.04(1)(m), Wisconsin Statutes].

This form must **ONLY** be filed with the **Awarding Agency** indicated below.

State Of )	Project Name		
	DWD Determination Number	Project Number (if applicable)	
)SS	Date Determination Issued	Date of Contract	
County Of )	Awarding Agency		
	Date Work Completed		

After being duly sworn, the person whose name and signature appears below hereby states under penalty of perjury that

- **I am** the duly authorized officer of the corporation, partnership, sole proprietorship or business indicated below and have recently completed all of the work required under the terms and conditions of a contract with the above-named awarding agency and make this affidavit in accordance with the requirements set forth in Section 66.0903(9)(c), 66.0904(7)(c) or 103.49(4r)(c), Wisconsin Statutes and Chapter DWD 290 of the Wisconsin Administrative Code in order to obtain FINAL PAYMENT from such awarding agency.
- **I have** fully complied with all the wage and hour requirements applicable to this project, including all of the requirements set forth in the prevailing wage rate determination indicated above which was issued for such project by the Department of Workforce Development on the date indicated above.
- **I have** received the required affidavit of compliance from each of my agents and subcontractors that performed work on this project and have listed each of their names and addresses on page 2 of this affidavit.
- **I have** full and accurate records that clearly indicate the name and trade or occupation of every worker(s) that I employed on this project, including an accurate record of the hours worked and actual wages paid to such worker(s).
- **I will** retain the records and affidavit(s) described above and make them available for inspection for a period of at least three (3) years from the completion date indicated above at the address indicated below and shall not remove such records or affidavit(s) without prior notification to the awarding agency indicated above.

Name of Corporation, Partnership, Sole Proprietorship, Business, State Agency or Local Governmental Unit				
Street Address	City	State	Zip Code	Telephone Number
Print Name of Authorized Officer			Date Signed	
Signature of Authorized Officer				

## List of Agents and Subcontractors

Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		

**If you have any questions call (608) 266-6861**

## Agent or Subcontractor Affidavit of Compliance With Prevailing Wage Rate Determination

Authorization for this form is provided under Sections 66.0903(9)(b), 66.0904(7)(b) and 103.49(4r)(9b), Wisconsin Statutes. The use of this form is mandatory. The penalty for failing to complete this form is prescribed in Section 103.005(12), Wisconsin Statutes.

Personal information you provide may be used for secondary purposes [Privacy Law, Section 15.04(1)(m), Wisconsin Statutes].

This form must **ONLY** be filed with the **Awarding Contractor** indicated below.

State Of _____ )  )SS  County Of _____ )	Project Name	
	DWD Determination Number	Project Number (if applicable)
	Date Determination Issued	Date of Subcontract
	Awarding Contractor	
	Date Work Completed	

After being duly sworn, the person whose name and signature appears below hereby states under penalty of perjury that

- **I am** the duly authorized officer of the corporation, partnership, sole proprietorship or business indicated below. We have recently completed all of the work required under the terms and conditions of a subcontract with the above-named awarding contractor. We make this affidavit in accordance with the requirements set forth in Section 66.0903(9)(b), 66.0904(7)(b) or 103.49(4r)(b), Wisconsin Statutes and Chapter DWD 290 of the Wisconsin Administrative Code in order to obtain FINAL PAYMENT from such awarding contractor.
- **I have** fully complied with the entire wage and hour requirements applicable to this project, including all of the requirements set forth in the prevailing wage rate determination indicated above which was issued for such project by the Department of Workforce Development on the date indicated above.
- **I have** received the required affidavit of compliance from each of my agents and subcontractors that performed work on this project and have listed each of their names and addresses on page 2 of this affidavit.
- **I have** full and accurate records that clearly indicate the name and trade or occupation of every worker(s) that I employed on this project, including an accurate record of the hours worked and actual wages paid to such worker(s).
- **I will** retain the records and affidavit(s) described above and make them available for inspection for a period of at least three (3) years from the completion date indicated above at the address indicated below and shall not remove such records or affidavit(s) without prior notification to the awarding contractor.

Name of Corporation, Partnership, Sole Proprietorship, Business, State Agency or Local Governmental Unit				
Street Address or PO Box	City	State	Zip Code	Telephone Number (    )
Print Name of Authorized Officer			Date Signed	
Authorized Officer Signature				

## List of Agents and Subcontractors

Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number (     )			Telephone Number (     )		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number (     )			Telephone Number (     )		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number (     )			Telephone Number (     )		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number (     )			Telephone Number (     )		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number (     )			Telephone Number (     )		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number (     )			Telephone Number (     )		

**If you have any questions call (608) 266-6861**

## Request to Employ Subjourneyperson

The use of this form is mandatory. The penalty for failing to complete this form is prescribed in Section 103.005(12), Wisconsin Statutes. Personal information you provide may be used for secondary purposes (Privacy Law, s. 15.04(1)(m), Wisconsin Statutes). The employer indicated below requests that the Department of Workforce Development (DWD) determine the prevailing wage rate(s) and related qualifications to enable such employer to use a subjourneyperson(s) on the following prevailing wage project, in accordance with the provisions of Section DWD 290.025, Wisconsin Administrative Code.

1. Name of Project Appearing on the Project Determination			
County	City, Village or Town		
DWD Project Determination Number	Project Number (if applicable)		
2. Job Classification(s) for which you request a subjourney rate (i.e., carpenter, electrician, plumber, etc.)			
a.	b.		
c.	d.		
3. Employer Name (Print)			
Address		City	State
Telephone Number (       )		Zip Code	
Requester Name (Print)		Requester Title	
Email address (if you prefer to receive your response via email)		Fax Number (if you prefer to receive your response via fax) (       )	

**READ CAREFULLY:** I understand that this request is ONLY applicable to the project and job classification(s) listed above and that subjourney employees primarily work under the direction of and assist a skilled trade employee by frequently using the tools of a skilled trade and will NOT regularly perform the duties of a general laborer, heavy equipment operator or truck driver. If the subjourney employee regularly performs the work of a different trade or occupation, he/she will be compensated for such work at the applicable journeyperson prevailing wage rate. I agree to compensate subjourney employees in strict accordance with the directions received from the DWD.

Requester Signature	Date Signed
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MAIL the completed request to:  
 EQUAL RIGHTS DIVISION, LABOR STANDARDS BUREAU  
 PO BOX 8928, MADISON WI 53708  
**OR**  
 FAX the completed request to: (608) 267-4592 / **DO NOT e-mail your request.**  
 Call (608) 266-6861 for assistance in completing this form.

## ADDITIONAL GENERAL PREVAILING WAGE LAW INFORMATION

(This document updated February 2014)

For prevailing wage laws and frequently asked questions, refer to the prevailing wage website at:  
[http://dwd.wisconsin.gov/er/prevailing\\_wage\\_rate/default.htm](http://dwd.wisconsin.gov/er/prevailing_wage_rate/default.htm)

Topic	Who's affected?	Brief description of requirement under §66.0903 or §103.49
Non-applicability	All public entities	Prevailing wage rates do not apply to minor service or maintenance work, warranty work, or work under a supply and installation contract.
Non-applicability: Minor service or maintenance work	Local governmental units & Contractors	Minor service or maintenance work means a project of public works that is limited to <ul style="list-style-type: none"> <li>• minor crack filling, chip or slurry sealing, or other minor pavement patching, not including overlays, that has a projected life span of no longer than 5 years or that is performed for a TOWN and is not funded under §86.31, regardless of projected life span;</li> <li>• the depositing of gravel on an existing gravel road applied solely to maintain the road;</li> <li>• road shoulder maintenance;</li> <li>• cleaning of drainage or sewer ditches or structures; or</li> <li>• any other limited, minor work on public facilities or equipment that is routinely performed to prevent breakdown or deterioration.</li> </ul>
Non-applicability: Minor service or maintenance work	State agencies	Minor service or maintenance work means a project of public works that is limited to <ul style="list-style-type: none"> <li>• minor crack filling, chip or slurry sealing, or other minor pavement patching, not including overlays, that has a projected life span of no longer than 5 years;</li> <li>• cleaning of drainage or sewer ditches or structures; or</li> <li>• any other limited, minor work on public facilities or equipment that is routinely performed to prevent breakdown or deterioration.</li> </ul>
Non-applicability: Supply & installation contract	All public entities	Supply and installation contract means a contract under which the material is installed by means of simple fasteners or connectors such as screws or nuts and bolts and no other work is performed on the site of the project of public works, and the total labor cost to install the material does not exceed 20 percent of the total cost of the contract.
Non-applicability: Work which a contractor or individual donates to a public entity	All public entities	Prevailing wage laws §§66.0903 & 103.49, Stats., do not apply to work performed on a project of public works for which the local governmental unit or the state or the state agency contracting for the project is not required to compensate any contractor, subcontractor, contractor's or subcontractor's agent, or individual for performing the work.

Topic	Who's affected?	Brief description of requirement under §66.0903 or §103.49
Non-applicability: Residential	All public entities	A prevailing wage rate determination is not required for the erection, construction, repair, remodeling, or demolition of a residential property containing 2 dwelling units or less.
Non-applicability: Residential subdivision infrastructure	All public entities	A prevailing wage rate determination is not required for a road, street, bridge, sanitary sewer, or water main project that is a part of a development in which at least 90 percent of the lots contain or will contain 2 dwelling units or less, as determined by the local governmental unit at the time of approval of the development, and that, on completion, is acquired by, or dedicated to, a local governmental unit (including under §236.13(2), Stats.), or the state, for ownership or maintenance by the local governmental unit or the state.
Electronic certified payroll record	Contractors	The requirement that every contractor on a prevailing wage project submit to DWD monthly a certified record of employees who worked on the project and that DWD post these certified records on its Internet website was discontinued effective July 1, 2011. Contractors are still required to maintain payroll records and provide them upon request from DWD &/or the project owner.
Payroll record inspection request by any person	Contractors & Complainants	Any person may request DWD to inspect the payroll records of any contractor working on a prevailing wage project. On receipt of such a request, the contractor must submit to DWD a certified record of its payroll records, other than personally identifiable information relating to an employee of the contractor, for no longer than a 4-week period. DWD may request records from a contractor under this provision no more than once per calendar quarter for each project of public works on which the contractor is performing work. The department may not charge a requester a fee for obtaining that information. DWD must make these certified records available for public inspection.
Statewide uniformity	Local governmental units	A local governmental unit may not enact & administer a prevailing wage ordinance/provision for public works or publicly funded private construction projects. Any extant laws to that effect are void.
Substance Abuse Testing	Contractors & Workers	Before commencing work on a prevailing wage project, a contractor must have a written substance abuse testing program in place that complies with §103.503, Wis. Stats. No employee may use, possess, attempt to possess, distribute, deliver, or be under the influence of a drug or under the influence of alcohol while performing work on a prevailing wage project.

Topic	Who's affected	Brief description of requirement under §66.0903 or §103.49
Covered employees	Truck drivers & Other workers & Contractors	<p>A laborer, worker, mechanic, or truck driver who is employed to process, manufacture, pick up, or deliver materials or products from a commercial establishment that has a fixed place of business from which the establishment supplies processed or manufactured materials or products or from a facility that is not dedicated exclusively, or nearly so, to a project of public works is NOT entitled to receive the prevailing wage rate UNLESS any of the following applies:</p> <ol style="list-style-type: none"> <li>1) the laborer, worker, mechanic, or truck driver is employed to go to the source of mineral aggregate such as sand, gravel, or stone and deliver that mineral aggregate to the site of a project of public works by depositing the material directly in final place, from the transporting vehicle or through spreaders from the transporting vehicle.</li> <li>2) the laborer, worker, mechanic, or truck driver is employed to go to the site of a project of public works, pick up excavated material or spoil from the site of the project, and transport that excavated material or spoil away from the site of the project.</li> </ol>

## **WAGE RATES—Davis Bacon**

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General Decision Number: WI150015 04/10/2015 WI15

Superseded General Decision Number: WI20140015

State: Wisconsin

Construction Type: Heavy

Counties: Wisconsin Statewide.

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

Note: Executive Order (EO) 13658 establishes an hourly minimum wage of \$10.10 for 2015 that applies to all contracts subject to the Davis-Bacon Act for which the solicitation is issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.10 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

Modification Number	Publication Date
0	01/02/2015
1	01/16/2015
2	02/06/2015
3	02/27/2015
4	03/20/2015
5	04/10/2015

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

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BRWI0001-002 06/01/2013

## VERNON COUNTIES

	Rates	Fringes
BRICKLAYER.....	\$ 35.94	17.05

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BRWI0002-002 06/01/2013

## ASHLAND, BAYFIELD, DOUGLAS, AND IRON COUNTIES

	Rates	Fringes
BRICKLAYER.....	\$ 35.94	17.05

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BRWI0002-005 06/01/2013

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...	\$ 32.65	17.44

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BRWI0003-002 06/01/2013

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

	Rates	Fringes
BRICKLAYER.....	\$ 30.85	17.85

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BRWI0004-002 06/01/2013

## KENOSHA, RACINE, AND WALWORTH COUNTIES

	Rates	Fringes
BRICKLAYER.....	\$ 35.10	18.58

BRWI0006-002 06/01/2013

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

	Rates	Fringes
BRICKLAYER.....	\$ 32.14	16.56

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BRWI0007-002 06/01/2013

GREEN, LAFAYETTE, AND ROCK COUNTIES

	Rates	Fringes
BRICKLAYER.....	\$ 32.14	18.25

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BRWI0008-002 06/01/2013

MILWAUKEE, OZAUKEE, WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
BRICKLAYER.....	\$ 35.37	18.47

-----  
BRWI0009-001 06/01/2012GREEN 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

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BRWI0013-002 06/01/2012

## DANE, GRANT, IOWA, AND RICHLAND COUNTIES

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

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BRWI0019-002 06/01/2012BARRON, BUFFALO, BURNETT, CHIPPEWA, DUNN, EAU CLAIRE, PEPIN,  
PIERCE, POLK, RUSK, ST. CROIX, SAWYER AND WASHBURN COUNTIES

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

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BRWI0021-002 06/01/2012

## DODGE AND JEFFERSON COUNTIES

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

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BRWI0034-002 06/01/2013

## COLUMBIA AND SAUK COUNTIES

	Rates	Fringes
BRICKLAYER.....	\$ 32.28	18.10

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CARP0087-001 07/01/2012BURNETT (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

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CARP0252-002 07/02/2012ADAMS, 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, TREMPPEALEAU, 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
Pile Driver.....	\$ 30.98	15.80

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 CARP0264-003 06/01/2008

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

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

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 CARP0361-004 07/11/2011

BAYFIELD (West of Hwy 63) AND DOUGLAS COUNTIES

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

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 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

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 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

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 ELEC0014-002 06/01/2014

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, TREMPLEALEAU, VERNON, AND WASHBURN  
 COUNTIES

	Rates	Fringes
Electricians:.....	\$ 30.59	18.43

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 ELEC0014-007 06/01/2014

## REMAINING COUNTIES

	Rates	Fringes
Teledata System Installer		
Installer/Technician.....	\$ 22.50	12.72

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).

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ELEC0127-002 06/01/2012

## KENOSHA COUNTY

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

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ELEC0158-002 06/02/2014

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
Electricians:.....	\$ 29.32	28.50% + 9.27

-----  
ELEC0159-003 06/02/2014

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:.....	\$ 34.82	19.575

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 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

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 ELEC0242-005 06/01/2014

DOUGLAS COUNTY

	Rates	Fringes
Electricians:.....	\$ 32.54	24.07

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 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

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 ELEC0430-002 06/01/2012

RACINE COUNTY (Except Burlington Township)

	Rates	Fringes
Electricians:.....	\$ 32.87	19.23
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ELEC0494-005 06/01/2014		

MILWAUKEE, OZAUKEE, WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
Electricians:.....	\$ 33.93	22.67
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ELEC0494-006 06/01/2014		

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

	Rates	Fringes
Electricians:.....	\$ 29.64	20.54
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ELEC0494-013 06/01/2014		

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

	Rates	Fringes
Sound & Communications		
Installer.....	\$ 16.47	14.84
Technician.....	\$ 25.63	17.21

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

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 ELEC0577-003 06/02/2014

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:.....	\$ 29.00	26.5%+9.15

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 ELEC0890-003 12/01/2014

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

	Rates	Fringes
Electricians:.....	\$ 31.30	24.93% + \$10.40

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 ELEC0953-001 07/01/2014

	Rates	Fringes
Line Construction:		
(1) Lineman.....	\$ 40.81	32% + 5.00
(2) Heavy Equipment Operator.....	\$ 38.77	32% + 5.00
(3) Equipment Operator.....	\$ 32.65	32% + 5.00
(4) Heavy Groundman Driver..	\$ 26.78	14.11
(5) Light Groundman Driver..	\$ 24.86	13.45
(6) Groundsman.....	\$ 22.45	32% + 5.00

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ENGI0139-001 06/01/2014

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

	Rates	Fringes
Power Equipment Operator		
Group 1.....	\$ 40.61	19.90
Group 2.....	\$ 40.11	19.90
Group 3.....	\$ 39.61	19.90
Group 4.....	\$ 38.92	19.90
Group 5.....	\$ 37.04	19.90
Group 6.....	\$ 31.89	19.90

## 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, leads and/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; Gantrys (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

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ENGI0139-003 06/01/2014

REMAINING COUNTIES

	Rates	Fringes
Power Equipment Operator		
Group 1.....	\$ 36.67	19.50
Group 2.....	\$ 35.42	19.50
Group 3.....	\$ 34.22	19.50
Group 4.....	\$ 33.69	19.50
Group 5.....	\$ 31.62	19.50
Group 6.....	\$ 30.99	19.50

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

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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.

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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.

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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

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IRON0512-008 06/09/2013

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

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

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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

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LABO0113-002 06/01/2014

MILWAUKEE AND WAUKESHA COUNTIES

	Rates	Fringes
LABORER		
Group 1.....	\$ 27.06	18.73
Group 2.....	\$ 27.21	18.73
Group 3.....	\$ 27.41	18.73
Group 4.....	\$ 27.56	18.73
Group 5.....	\$ 27.71	18.73
Group 6.....	\$ 23.55	18.73

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

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LABO0113-003 06/01/2014

OZAUKEE AND WASHINGTON COUNTIES

	Rates	Fringes
LABORER		
Group 1.....	\$ 26.31	18.75
Group 2.....	\$ 26.41	18.75
Group 3.....	\$ 26.46	18.75
Group 4.....	\$ 26.66	18.75
Group 5.....	\$ 26.51	18.75
Group 6.....	\$ 23.40	18.75

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

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LABO0113-011 06/01/2014

## KENOSHA AND RACINE COUNTIES

	Rates	Fringes
LABORER		
Group 1.....	\$ 26.12	18.75
Group 2.....	\$ 26.27	18.75
Group 3.....	\$ 26.47	18.75
Group 4.....	\$ 26.44	18.75
Group 5.....	\$ 26.77	18.75
Group 6.....	\$ 23.26	18.75

## 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

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\* LAB00140-002 06/01/2014

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, TREMPLEAU, VERNON, VILLAS, WALWORTH, WASHBURN, WAUPACA, WAUSHARA, WINNEBAGO, AND WOOD COUNTIES

	Rates	Fringes
LABORER		
Group 1.....	\$ 30.13	15.04
Group 2.....	\$ 30.23	15.04
Group 3.....	\$ 30.28	15.04
Group 4.....	\$ 30.48	15.04
Group 5.....	\$ 30.33	15.04
Group 6.....	\$ 26.76	15.04

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

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LABO0464-003 06/01/2014

DANE COUNTY

Rates	Fringes
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LABORER

Group 1.....	\$ 30.41	15.04
Group 2.....	\$ 30.51	15.04
Group 3.....	\$ 30.56	15.04
Group 4.....	\$ 30.76	15.04
Group 5.....	\$ 30.61	15.04
Group 6.....	\$ 26.76	15.04

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

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 PAIN0106-008 05/01/2014

ASHLAND, BAYFIELD, BURNETT, AND DOUGLAS COUNTIES

	Rates	Fringes
Painters:		
New:		
Brush, Roller.....	\$ 28.81	15.27
Spray, Sandblast, Steel....	\$ 29.41	15.27
Repaint:		
Brush, Roller.....	\$ 27.31	15.27

Spray, Sandblast, Steel....\$ 27.91 15.27

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 PAIN0108-002 06/01/2014

RACINE COUNTY

Rates Fringes

Painters:

Brush, Roller.....\$ 30.90 18.39  
 Spray & Sandblast.....\$ 31.90 18.39

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 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

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 PAIN0259-004 05/01/2013

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

Rates Fringes

PAINTER.....\$ 21.15 11.53

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 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

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 PAIN0802-002 06/01/2012

COLUMBIA, DANE, DODGE, GRANT, GREEN, IOWA, LAFAYETTE, RICHLAND,

ROCK, AND SAUK COUNTIES

	Rates	Fringes
PAINTER		
Brush.....	\$ 24.50	16.27

PREMIUM PAY:

Structural Steel, Spray, Bridges = \$1.00 additional per hour.

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PAIN0802-003 06/01/2013

ADAMS, BROWN, CALUMET, CLARK, DOOR, FOND DU LAC, FOREST, GREEN LAKE, IRON, JUNEAU, KEWAUNEE, LANGLADE, LINCOLN, MANITOWOC, MARATHON, MARINETTE, MARQUETTE, MENOMINEE, OCONTO, ONEIDA, OUTAGAMIE, PORTAGE, PRICE, SHAWANO, SHEBOYGAN, TAYLOR, VILAS, WAUSHARA, WAUPACA, WINNEBAGO, AND WOOD COUNTIES

	Rates	Fringes
PAINTER.....	\$ 22.82	11.52

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PAIN0934-001 06/01/2014

KENOSHA AND WALWORTH COUNTIES

	Rates	Fringes
Painters:		
Brush.....	\$ 30.84	18.50
Spray.....	\$ 31.84	18.50
Structural Steel.....	\$ 30.99	18.50

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PAIN1011-002 06/01/2014

FLORENCE COUNTY

	Rates	Fringes
Painters:.....	\$ 24.15	10.86

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PLAS0599-010 06/01/2012

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER		
Area 1.....	\$ 32.78	16.80
Area 2 (BAC).....	\$ 31.52	16.30
Area 3.....	\$ 31.37	16.85
Area 4.....	\$ 30.69	17.53
Area 5.....	\$ 32.09	16.13
Area 6.....	\$ 28.50	19.72

AREA DESCRIPTIONS

AREA 1: BAYFIELD, DOUGLAS, PRICE, SAWYER, AND WASHBURN COUNTIES

AREA 2: 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

AREA 3: BUFFALO, CRAWFORD, EAU CLAIRE, JACKSON, JUNEAU, LA CROSSE MONROE, PEPIN, PIERCE, RICHLAND, TREMPLEAU, 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

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 PLUM0011-003 05/07/2012

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

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

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 PLUM0075-002 06/01/2014

MILWAUKEE, OZAUKEE, WASHINGTON, AND WAUKESHA COUNTIES

Rates Fringes

PLUMBER.....\$ 38.37 19.69

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 PLUM0075-004 06/01/2014

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

Rates Fringes

PLUMBER.....\$ 38.62 19.57

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 PLUM0075-009 06/01/2014

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

Rates Fringes

PLUMBER.....\$ 37.57 17.47

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 PLUM0111-007 05/05/2014

MARINETTE COUNTY (Niagara only)

Rates Fringes

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

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 PLUM0118-002 06/01/2013

KENOSHA, RACINE, AND WALWORTH COUNTIES

Rates Fringes

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

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 PLUM0400-003 06/02/2014

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.....	\$ 32.99	16.33

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 PLUM0434-002 06/02/2014

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, TREMPLEAU, VERNON, VILAS, AND WOOD COUNTIES

	Rates	Fringes
PIPEFITTER.....	\$ 35.55	16.12

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 PLUM0601-003 01/01/2013

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

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

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 PLUM0601-009 12/01/2012

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

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

-----  
 TEAM0039-002 06/01/2014

	Rates	Fringes
TRUCK DRIVER		

1 & 2 Axle Trucks.....	\$ 25.18	18.31
3 or more axles; Euclids or Dumptor, Articulated Truck, Mechanic.....	\$ 25.38	18.31

-----  
SUWI2011-001 11/16/2011

	Rates	Fringes
WELL DRILLER.....	\$ 16.52	

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

=====  
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 a union rate (current union negotiated rate for local),  
a survey rate (weighted average rate) or a union average rate  
(weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed  
in dotted lines beginning with characters other than "SU" or  
"UAVG" denotes that the union classification and rate were  
prevailing for that classification in the survey. Example:  
PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of  
the union which prevailed in the survey for this  
classification, which in this example would be Plumbers. 0198  
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. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

### Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

### Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

---

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.

=====

END OF GENERAL DECISION

## **LABELED TAB – AVAILABLE PROJECT INFORMATION**

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**\*Place labeled tab AFTER any wage rate information from State of Wisconsin AND AFTER ANY SOIL REPORTS OR PERMITS.**

# Habitat Restoration Plan

## Menekaunee Harbor Restoration

Marinette County, Wisconsin

### *Partners*

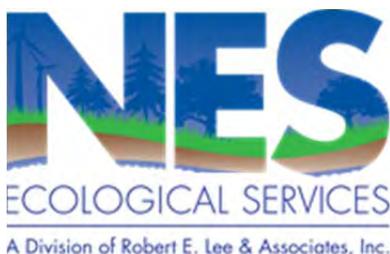
City of Marinette, Wisconsin Department of Natural Resources & Environmental Protection Agency



Prepared By:

A handwritten signature in black ink that reads "James Havel".

James Havel  
Senior Ecologist



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Appendix D – Ayres Associates 2013 Plant Survey
Appendix E – Restored Plant Community Zones and Habitat Improvements
Appendix F – Habitat Structure Details

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## INTRODUCTION & PROJECT BACKGROUND

Menekaunee Harbor is a 13-acre natural embayment of the Menominee River, and included within the boundaries of the Lower Menominee River Area of Concern (AOC) by the United States Environmental Protection Agency (USEPA). This AOC includes the lower three miles of the River, from the Park Mill Dam to the River's mouth, and approximately 3.1 miles north and south of the mouth along the adjacent shoreline of Green Bay. The Lower Menominee River AOC is one of 43 in the Great Lakes-St. Lawrence River Basin. Beneficial Use Impairments (BUIs) in the Lower Menominee River AOC include: restrictions on fish and wildlife consumption; degradation of fish and wildlife populations; degradation of benthos; restrictions on dredging activities; and loss of fish and wildlife habitat. Pollutants contained within the Harbor, caused by years of upstream heavy industrial manufacturing practices and non-point pollutant storm water run-off, contribute daily to the cause of the BUIs within the AOC.

The Menekaunee Harbor is located within the City of Marinette, Wisconsin, and lies adjacent to the Michigan-Wisconsin border at the mouth of the Menominee River where it enters the bay of Green Bay of Lake Michigan. The harbor is connected to the Menominee River by a 1,000-foot long navigable channel. Historically, the Harbor extended eastward to the shoreline of Green Bay and was an extension of the Lower Menominee River; however, sand dunes formed on the east side of the harbor following the 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 Menekaunee Harbor eastward, toward the shoreline of Lake Michigan.

Historically, this wetland and the harbor area, acted as a feeding ground and breeding sanctuary for migratory birds and game fish which attracted anglers and birders alike. The shallow waters, submerged vegetation, and wetlands provided diverse and critical habitat for a variety of game fish, avian species, reptiles, amphibians, mammals, and invertebrates. This area continues to be an important wildlife resource, especially for migratory birds. Menekaunee Harbor along with Red Arrow Park and Seagull Bar State Natural Area can be important stopover or "fallout" locations during spring and fall migration due to their location near the mouth of the junction of Menominee River and Lake Michigan. However, due to reduced water levels of the Great Lakes, Menekaunee Harbor has lost its natural free-flowing river characteristics. Additionally, historical manufacturing practices along the River have resulted in degradation and contamination to this once diverse ecosystem. Hydrologic alteration has caused extensive sediment deposition which has added to the degradation of this wetland by contributing to the rapid spread of invasive plant species, subsequently decreasing plant species diversity and ecosystem functioning.

The City of Marinette (the City), in cooperation with the Wisconsin Department of Natural Resources (WDNR), is undertaking a restoration of the Menekaunee Harbor as part of the Great Lakes Restoration Initiative (GLRI). The WDNR provided the City with a \$1.1 million dollar environmental repair grant that was matched at 35% (\$611,474) by the City. In addition to these funding sources, the WDNR secured a \$6.565 million dollar grant from the USEPA's Great Lakes National Program Office (GLNPO) through the Great Lakes Restoration Initiative (GLRI). Ayres Associates was initially retained by the City to assist with the restoration, including baseline studies, planning, and design. Project components include replacement of a failing seawall, removal of sediment (due to contamination and navigation issues), and restoration of fish and wildlife habitat. The project background and baseline conditions found within the Habitat Restoration Plan were completed by Ayres Associates. The City then contracted with NES Ecological Services – A Division of Robert E. Lee & Associates, Inc. (NES) to complete the site design included within the plan. The Habitat Restoration Plan documents the recommendations by NES, the WDNR, and the Lower Menominee River AOC Fish and Wildlife Technical Advisory Committee for restoring native vegetation and optimal fish and wildlife habitat to the wetland complex at

the east side of the Harbor. The ecological habitat restoration addresses degradation of fish and wildlife populations, and the loss of fish and wildlife habitat.

## Site Location

The Menekaunee Harbor is located east of the Ogden Street Bridge within the City of Marinette, Wisconsin, and lies adjacent to the Michigan-Wisconsin border at the mouth of the Menominee River where it enters the bay of Green Bay of Lake Michigan. The project site is located in the SW ¼ of the SW ¼ and the SE ¼ of the SW ¼ of Section 4, and the NW ¼ of the NW ¼ and the NE ¼ of the NW ¼ of Section 9, Township 30 North, Range 24 East (Appendix A). The restoration areas will be accessed via a recreational trail along the south side of the harbor, with staging/parking from the gravel lot at the east end of Russell Street.

## Restoration Objectives

The purpose of the Menekaunee Harbor ecological restoration is to restore native vegetation and habitat to a degraded wetland complex. This relates to the goals of the *2013 Fish and Wildlife Population and Habitat Management and Restoration Plan Update for the Lower Menominee River Area Concern*. The achievement of the goals outlined in that plan would mean that conditions have improved such that the BUIs of degradation of fish and wildlife populations and the loss of fish and wildlife habitat will no longer be applicable within the AOC. The goals include:

- Long-term protection is in place for natural areas and wetlands within the AOC, including Seagull Bar and riverine islands.
- Nesting populations of a diverse array of wetland-dependent and riparian-associated birds are consistently present within the AOC.
- The lake sturgeon (*Acipenser fulvescens*) population is enhanced.
- Diverse and functional native fish and mussel assemblages are present in the AOC that sustain natural recruitment.
- A healthy and diverse native vegetation community has been restored.

In support of these goals, the objectives and related target criteria of this restoration are as follows:

1. Restore benthic habitats for use by invertebrates and native fish species which historically utilize the harbor: walleye (*Sander vitreus*), yellow perch (*Perca flavescens*), muskellunge (*Esox masquinongy*), smallmouth bass (*Micropterus dolomieu*), largemouth bass (*Micropterus salmoides*), northern pike (*Esox lucius*), and bluegill (*Lepomis macrochirus*).
  - a) Eliminate contaminated sediments and establish water depths averaging 6-7 feet.
  - b) Install fish sticks, log structures, woody debris and rock to increase cover and feeding opportunities.
  - c) Establish small populations of submergent native vegetation in the harbor.
  - d) Eliminate and control invasive species within emergent aquatic communities, while establishing native plants to provide spawning habitat.
2. Establish healthy and diverse native vegetation communities
  - a) Restore/create community types found to be high priority communities within the Northern Lake Michigan Coastal Ecological Landscape.
  - b) Install a variety of ferns, grasses, sedges, forbs, shrubs and trees currently and historically found within Marinette County. Wild rice (*Zizania palustris*) was historically found within the Menominee River; therefore, an attempt will be made to re-establish a viable population.

- c) Increase plant diversity by added a few species typically found more often within southern Wisconsin to account for temperature increases due to global climate shifts.
  - d) Absolute cover of invasive species will be < 15% within each community type.
3. Restore wetland and upland habitat for use by invertebrates, amphibians, reptiles, mammals and birds.
- a) Native vegetation capable of providing a variety of food and cover will be established throughout the restored/created communities.
  - b) Existing snags will be left and protected to provide food sources and potential future nesting sites.
  - c) Rock and brush piles will be added to provide cover.
  - d) Downed woody debris will be placed in the emergent aquatic and wet meadow communities to provide sites for loafing and basking.
  - e) Nesting boxes and platforms will be installed to increase suitable nesting sites.
  - f) Bat houses will be erected to provide roosting sites.

In addition to the habitat benefits towards removing BUIs in the AOC, the project presents opportunities for public outreach, education, recreation, beautification, and connectivity with other nearby restoration projects. As a result of achieving the restoration objectives, the project will also increase wetland functional values significantly.

## BASELINE CONDITIONS

The existing wetland complex is located in the southeastern portion of the Menekaunee Harbor and consists of open water, shallow marsh, and wet meadow, all degraded due to a dominance of invasive, non-native giant reed grass (*Phragmites australis*). The upland to the east is also dominated by invasive species, some of which are present in the wetland as well. The site is bordered by the Menekaunee Harbor to the west and north, by Lake Michigan shoreline to the east, and by industry and forested wetland to the south. Lands adjacent to the other portions of the harbor are largely developed and in industrial applications. See Appendix B for photographs of the site.

## Topography

Topography at the site is nearly level to gently sloping, with the lowest areas along the west end at the inner part of the harbor. Elevations range from approximately 585 mean sea level (msl) at the east end of the site, to approximately 578 msl at the edge of water. Topography developed as sediment was continually deposited into the harbor over the past decades, and has not purposely been altered by human activities.

## Geology and Soils

This site is located within the Green Bay Sandy Lake Plain subsection of the Northern Lake Michigan Coastal ecological landscape. The land type association is identified as Marinette Plains, which is nearly level lake plain with many swamps. Soils are predominantly somewhat poorly drained loamy fine sand over sandy lacustrine. Carbonate bedrock is present at a depth between 5-50 feet of the surface.

The Natural Resources Conservation Service (NRCS) does not have any soils mapped at the site, only water (Appendix C). However, adjacent lands have mapped soils of Udorthents, loamy (on the island north of the harbor) and Saprists and Psammaquents, ponded (to the southeast, along the shore of Lake Michigan). The Udorthents, loamy unit consists of loamy and/or sandy human-transported material, and is a somewhat excessively drained non-hydric soil. Both components of the Saprists and Psammaquents, ponded unit are very poorly drained hydric soils, with parent materials of organic material and sandy drift.

Soils further to the south at Red Arrow Park, a reference area for this restoration, are mapped as Saprists and Psammaquents, ponded, Seelyeville and Markey mucks, and Rousseau loamy fine sand. Both components of the Seelyeville and Markey mucks unit are very poorly drained hydric soils, with parent material consisting of herbaceous organic matter, partially over sandy lacustrine deposits and/or outwash. Rousseau loamy fine sand is a moderately well drained non-hydric soil, with parent material of predominantly fine sandy outwash.

Soils at the restoration site developed as sediments were deposited from not only the Menominee River, but also from Lake Michigan wave action. These soils most closely resemble the Saprists and Psammaquents, ponded, unit—within the lower, wet areas—and the Rousseau loamy fine sand unit at the higher and drier upland to the east. The discussed soils are summarized in the table below.

Table 1. Mapped Soils

SOIL SYMBOL	SOIL MAP UNIT	DRAINAGE CLASS	HYDRIC COMPONENT OR INCLUSIONS
RsB	Rousseau loamy fine sand	Moderately well	Non-hydric
Sa	Saprists and Psammaquents, ponded	Very poorly	Hydric
Sd	Seelyeville and Markey mucks	Very poorly	Hydric
Ud	Udorthents, loamy	Somewhat excessively	Non-hydric

## Hydrology

The site is located within the lowest reaches of the Menominee River watershed. Hydrology at the site is associated with the water levels in the Menekaunee Harbor and Lake Michigan, which are directly adjacent. In comparison, the input from precipitation and overland runoff is negligible, especially given the small area that drains directly into the wetland. There has been no alteration of hydrology at the site, though there has been natural fluctuation as water levels in Lake Michigan change from year to year. For the last decade and a half water levels have been below average, though 2014 saw significant gains. The restoration does not focus on affecting hydrology, but rather on enabling the site to adapt should water levels rise or fall.

## Existing Plant Communities

The Wisconsin Wetland Inventory (WWI) identifies the project site as a combination of scrub/shrub and emergent/wet meadow wetland (S3/E1K) and as flats/unvegetated wet soil (F0K) (Appendix C). However, during the field visit it was observed that the shrubs within the wetlands were entirely dead, and that the area designated as flats/unvegetated wet soil was actually partially wet meadow, and partially upland grassland.

Although the site historically supported wild rice at the wetland, it has most recently been dominated by invasive, non-native giant reed grass. The giant reed grass occurs in not only the shallow marsh parts of the wetland, but also in the slightly less saturated wet meadow areas. However, the fall of 2012 saw the site's first herbicidal treatment for the giant reed grass, with a second application conducted in the fall of 2014. During a site assessment in the fall of 2013 it was noted that the giant reed grass was responding very well to this treatment. However, plant diversity is still limited and has a high occurrence of other invasive species. An inventory of plant species observed at the site in the fall of 2013 by Ayres Associates is contained in Appendix D. Invasive species present included field sow-thistle

(*Sonchus arvensis*), spotted knapweed (*Centaurea biebersteinii*), Canada thistle (*Cirsium arvense*), white clover (*Trifolium repens*), giant reed grass, curly dock (*Rumex crispus*), butter-and-eggs (*Linaria vulgaris*), common mullein (*Verbascum thapsus*), and narrow-leaved cattail (*Typha angustifolia*).

## Fish and Wildlife

Current use by wildlife is limited due to the contaminated sediments and impaired plant communities. The fish population is dominated by common carp (*Cyprinus carpio*), although historically the harbor supported diverse native species such as largemouth and smallmouth bass, muskellunge, northern pike, walleye, and yellow perch. There is minimal woody habitat along the shore for loafing or resting by reptiles and amphibians. Very little suitable forage or nesting habitat exists for wetland-dependent and riparian-associated birds. Wildlife observations included whitetail deer and mink. Being contiguous with Red Arrow Park and Seagall Bar on the Lake Michigan shoreline, this site has the potential to be a natural location for terrestrial wildlife to venture into.

The restoration has the potential to benefit a wide variety of invertebrate, bird, fish, mammal, reptile and amphibian species. Birds expected to utilize the restored wetland include but are not limited to: red-winged blackbird (*Agelaius phoeniceus*), wood duck (*Aix sponsa*), tree swallow (*Tachycineta bicolor*), Canada goose (*Branta canadensis*), mallard (*Anas platyrhynchos*), terns (*Sterna spp.*), gulls (*Larus spp.*), great blue heron (*Ardea herodias*), northern harrier (*Circus cyaneus*), and belted kingfisher (*Megaceryle alcyon*). Species within the following general groups will also benefit: waterfowl, seabirds, wading birds, birds of prey and passerines, many of which are migratory birds that could use the site as a stopover. Fish species which the aquatic habitat will be optimized for include: walleye, yellow perch, muskellunge, smallmouth bass, largemouth bass, bluegill, and northern pike. Mammals expected to frequent the site include the white tailed deer (*Odocoileus virginianus*), red fox (*Vulpes vulpes*), American mink (*Neovison vison*), raccoon (*Procyon lotor*), Eastern cottontail (*Sylvilagus floridanus*), Eastern gray squirrel (*Sciurus carolinensis*), Little brown bat (*Myotis lucifugus*), muskrat (*Ondatra zibethicus*), woodchuck (*Marmota monax*) and other small mammals such as moles, shrews and mice. Herpetofauna which may utilize the site include the Blanding's turtle (*Emydoidea blandingii*), painted turtle (*Chrysemys picta*), Eastern snapping turtle (*Chelydra serpentina serpentina*), common gartersnake (*Thamnophis sirtalis*), northern leopard frog (*Lithobates pipiens*), American toad (*Anaxyrus americanus americanus*), green frog (*Lithobates clamitans melanota*), gray tree frog (*Hyla versicolor*), and common mudpuppy (*Necturus maculosus*).

## Functional Values Assessment

A wetland functional value assessment occurred through use of the Wisconsin Rapid Assessment Methodology. The purpose of this assessment was to be able to document the change in functional values following habitat restoration. Based on the results of this assessment, restoration as described in this document will increase the functional values of floristic integrity, human use values, wildlife habitat, fish and aquatic life habitat, and shoreline protection.

**Floristic Integrity – low.** Invasive species cover over 50% of the site, strata are missing or bare due to invasive species, communities are degraded to the point that they do not fit into the Natural Heritage Inventory classifications, nor are they uncommon.

**Human Use Values – low.** The site has limited use for recreation, but some ice fishing occurs and boating due to the presence of the adjacent private marina. However, the site is not used for educational or scientific purposes, is not aesthetically pleasing (low diversity of habitat types, degraded), does not provide habitat for endangered, threatened, or special concern species, and is not in or adjacent to an archaeological or cultural resource site. The site is, however, visually or physically accessible to the

public, and is in or adjacent to a “RED FLAG” area – Lake Michigan. RED FLAG areas are sensitive or unique water and terrestrial resources.

**Wildlife Habitat – *medium*.** The site does not have three or more strata present, does not have over 75% natural land cover intact within a 100 meter buffer, does not occur in a Joint Venture priority township, does not support or provide habitat for Species of Greatest Conservation Need or birds listed in the Wisconsin All-Bird Conservation Plan or other plans, is not part of a large habitat block that supports area sensitive species, does not have the presence of an ephemeral pond, and does not have the presence of seasonally exposed mudflats. However, there are over 10 acres of wetland and contiguous habitat, the site is within or adjacent to habitat corridor or an established wildlife habitat area, there is an interspersed of habitat structure, and standing water provides habitat for amphibians and aquatic invertebrates.

**Fish and Aquatic Life Habitat – *medium*.** The wetland is connected or contiguous with a perennial stream or lake, standing water provides habitat for amphibians and aquatic invertebrates, there are NHI-listed aquatic species within the aquatic system, and vegetation is inundated in the spring. The value is not greater due to the fact that the vegetation which is inundated is largely degraded, there are no tree drops for invertebrate habitat or amphibian loafing, and the sediments within the harbor are currently contaminated.

**Shoreline Protection – *medium*.** The site is along the shoreline of a stream, lake, pond, or open water area, there is theoretically the potential for erosion (though this has not been an issue), and there is densely rooted emergent vegetation. The value is not greater due to the fact that the densely rooted vegetation is degraded, and because the potential for erosion is currently very low due to limited boat traffic (sediments impede navigation) and there is a limited amount of water entering the harbor directly from the South Channel of the Menominee River to the west.

**Flood and Stormwater Storage – *low*.** Water flow through the site is not channelized and there are a number of storm water outfalls to the harbor from industrial areas. However, the site is not a basin wetland and does not have a constructed outlet or through-flow, vegetation is not consistently dense and persistent, there is no evidence of flashy hydrology, there is no point or non-point source inflow directly onto the land portion of the wetland, impervious surfaces do not cover over 10% of land surface within the watershed, the watershed does not have less than 10% wetland, and the wetland does not have the potential to hold over 10% of the runoff from the contributing area from a 2-year 24 hour storm event.

**Water Quality Protection – *medium*.** The site does not provide substantial storage of storm and floodwater, is not a basin wetland or constricted outlet, vegetation is not consistently dense and persistent, stormwater or surface water from agricultural land is not a major hydrology source, and natural land cover in a 100 meter buffer area is over 50%. However, water flow through the wetland is not channelized, it is a vegetated wetland associated with a lake or stream, there are signs of excess nutrients such as heavy macrophyte growth, and the site discharges to surface water.

**Groundwater Protection – *low*.** The wetland has organic soils in spots; however, there are no springs, seeps, or indicators of groundwater present, the site is not near a groundwater divide or a headwater wetland, and the wetland is not within a wellhead protection area.

## SITE DESIGN

Seven habitat types will be established on the site (Appendix E) and planted with native vegetation. These habitat types are Open Water with Submergent Aquatic, Emergent Aquatic – Wild Rice, Emergent Aquatic, Northern Sedge Meadow, Shrub-Carr, Wet Mesic Forest and Mesic/Wet-Mesic Prairie. Plant communities were chosen based on several factors including: presence within adjacent reference sites such as Red Arrow Park and Seagull Bar found within Marinette County; historical presence based on

John Curtis's vegetation study presented in "The Vegetation of Wisconsin – An Ordination of Plant Communities" (1959); natural communities which are in greatest need of conservation or support wildlife species that are considered to be high priority Species of Greatest Conservation Need (SGCN) within the Northern Lake Michigan Coastal Ecological Landscape (Wisconsin's Wildlife Action Plan, 2005-2015); and existing site conditions including: depth of surface water, depth to groundwater, soil and light conditions, and current vegetative growth. Native vegetation species chosen to be installed within each community type were selected in a similar manner. In addition to using the above reference information, a search of the Robert W. Freckmann Herbarium was conducted to determine historical accounts within Marinette County and the State of Wisconsin. Correspondence with several native plant nurseries was also conducted to ensure species availability.

Many of the selected species are found to occur naturally in multiple community types with varying growing conditions; therefore, certain species are included in several planting zones. Species overlap between communities will ensure success when hydrologic conditions change over time. The majority of species proposed for planting are found commonly throughout Wisconsin; however, a few species typically found within southern Wisconsin were also added to account for potential plant community shifts in the future due to climate change. Chosen species will provide essential wildlife habitat and ground cover, while providing aesthetically pleasing communities in an urban setting.

In addition to establishing native vegetation within the proposed habitats, structural improvements will also be installed to improve feeding, shelter and nesting opportunities within each community type. Structures include submerged log and tree top (fish stick) complexes, exposed woody debris, rock and brush piles, snags and nesting boxes or platforms.

The proposed native planting plan and structural components for each community type are outlined and discussed below.

## **Design Features and Communities**

### ***Open Water with Submergent Aquatic Vegetation***

The open water zone was previously dominated by Eurasian water milfoil (*Myriophyllum spicatum*) and common waterweed (*Elodea canadensis*); however, dredging operations completed in the summer and fall of 2014 to remove contaminated sediments as a part of the Menekaunee Harbor restoration have eliminated these and other species. Sunken woody debris was also removed during these operations. Following the removal of the contaminated sediments, the area was backfilled with two feet of native, non-contaminated sand. These activities along with a rise in water levels nearly two feet resulted in the creation of roughly 2.5 acres of open water within the habitat restoration area. Water depths range from 6 inches to 11 feet with an average water depth of less than 4 feet. Disturbance has resulted in a loss of wildlife habitat within the community; however, proposed submergent plantings and installation of woody debris will help restore habitat by providing cover, loafing, basking and feeding opportunities for a variety of invertebrate, fish, amphibian, reptile, mammal and bird species.

### **Site Preparation - Invasive Species Control**

The rise in water levels during 2014 has resulted in some previously exposed areas dominated by emergent vegetation such as giant reed grass and cattails (*Typha spp.*) to be submerged. Herbicide applications completed in the fall of 2012 and 2014 as part of the Menekaunee Harbor restoration have significantly reduced or eliminated emergent vegetation within this portion of the zone. Mowing operations in the winter of 2015 removed most of the dead material. Although the eastern portion of the open water area will eventually revert back into an emergent aquatic zone as the adjacent community develops and expands, the current water depths limit successful planting. Therefore, the area indicated as an enhancement zone within the Open Water Community shall continue to have non-native and invasive

species controlled to ensure overall restoration success.

Invasive species control efforts will likely focus on, but are not limited to the following species: cattails, especially narrow-leaf and hybrid species (*Typha x glauca*), reed canary grass (*Phalaris arundinacea*), giant reed grass and purple loosestrife (*Lythrum salicaria*). Quick, early treatment of these species will save time and money down the road. Addressing invasive species will be an annual endeavor due to their ability to appear suddenly and spread quickly, but aggressive and proactive maintenance early on will limit future activities. Below are some steps that can be taken to address these species.

Prior to conducting any herbicide application over water, a permit for the chemical application needs to be secured from the Wisconsin Department of Natural Resources (WDNR); and, all posting and notification requirements must be followed. The entity or contractor must also have a Wisconsin Pollutant Discharge Elimination System (WPDES) general permit for Pesticide Pollutant Discharge for Control of Aquatic Plants, Algae and Bacteria. Individuals applying the herbicide must be a certified pesticide applicator through the State of Wisconsin in Category 5 – Aquatic & Mosquito. Businesses must also be licensed through the Wisconsin Department of Agriculture, Trade and Consumer Protection (WDATCP). Records of each application must be kept and provided to the City of Marinette and the WDNR as required by law. All conditions including wearing the appropriate Personal Protective Equipment (PPE) listed on the chemical labels should also be followed.

## Reed Canary Grass

Reed canary grass is an aggressive species and can be difficult to control with just one method. Although this grass can be located and identified early in the growing season, it may be more easily identify during the flowering stage. Seed heads on chemically treated plants have been found to produce viable seeds; therefore, the heads should be removed and disposed of properly to prevent further spread. The steps we recommend following include:

### Single Plants or Small Clusters

- 1) Seed heads should be cut and placed in thick, plastic bags and removed to a licensed landfill facility for proper disposal.
- 2) A herbicide solution, including the chemical (AquaNeat® or Rodeo®, Habitat®, etc.), a surfactant or MSO, ammonium sulfate, and marking dye, should be applied through one of the below methods:
  - a) Apply solution containing 25-30% glyphosate or imazapyr to the plant using the “Glove of Death” technique. The technique involves spraying the solution onto a cotton glove that is worn by the applicator over chemically resistant gloves; the applicator then takes hold of the plant near the base and runs the cotton glove up the plant stem.
  - b) Broadcast spray solution containing 2% glyphosate or imazapyr on the target plants. Backpack sprayers are typically used. If plant densities are relatively low, this method is not generally used because there is an increased chance of impacting the surrounding, native vegetation through drift since glyphosate and imazapyr are non-selective herbicides.

### Large Clusters or Populations

- 1) Grass should be cut prior to seed development and allowed to re-grow.
- 2) Conduct a broadcast spray as discussed above.

If the grass can be accurately identified prior to seed head development, the plant should either be hand wicked or broadcast sprayed in mid to late May to eliminate additional tasks. A follow-up treatment will likely be required in the fall.

A surfactant such as Activator 90 should be added to the herbicide solution because the wetting agent and activator helps break down the waxy leaf cuticle and increases herbicide uptake. Hard water and high pH can reduce the mixing ability and/or solubility of certain pesticides, especially glyphosate based products; therefore, ammonium sulfate (Choice® Weather Master) should be added to improve chemical uptake. A marking dye such as Hi-Light Blue should also be added to ensure appropriate coverage.

## **Purple Loosestrife**

Control of purple loosestrife often requires site visits during the flowering stage to ensure all plants are located and eradicated. Since the quickest and easiest way to identify this invasive species is during the flowering stage, herbicide application alone will not provide total control. Flowers on chemically treated plants have been found to produce viable seeds; therefore, the flower heads should be removed and disposed of properly. Herbicide applications should occur in July and August to achieve best results. The steps we recommend following include:

### Single Plants or Small Clusters

- 1) Cut seed heads and place in thick, plastic bags.
- 2) Herbicide remaining vegetation (see below).
- 3) Securely close bagged material and remove to a licensed landfill facility for proper disposal.

### Large Clusters or Populations

- 1) Flower heads will be cut and placed in thick, plastic bags. If bags develop tears during the process due to puncturing by the plant's woody stem, the compromised bag and its contents will be placed inside another bag to achieve full containment.
- 2) A herbicide solution, including the chemical (AquaNeat® or Polaris®, etc.), a surfactant or MSO, ammonium sulfate, and marking dye, will be applied through one of the below methods:
  - a) Apply solution containing 25-30% glyphosate or imazapyr directly to cut stem with sponge type applicator so that it can be absorbed into the root system.
  - b) Apply solution containing 5% glyphosate or imazapyr to the plant using the "Glove of Death" technique. The technique involves spraying the solution onto a cotton glove that is worn by the applicator over chemically resistant gloves; the applicator then takes hold of the plant near the base and runs the cotton glove up the plant stem.
  - c) Broadcast spray solution containing 2% glyphosate or imazapyr on the target plants. Backpack sprayers are typically used. If plant densities are relatively low, this method is not generally used because there is an increased chance of impacting the surrounding, native vegetation through drift since glyphosate and imazapyr are non-selective herbicides.
- 3) Securely close bagged material and remove to a licensed landfill facility for proper disposal. Prior to moving the materials, all equipment and clothing will be inspected thoroughly to ensure no plant fragments or seeds are dispersed in the process.

## Cattails

Although broad-leaf cattails are native, they can be very aggressive; therefore, they should be selectively controlled so that only a certain percentage occurs within the planting. All non-native cattails should be removed. Initial control can be conducted by manually pulling young plants and composting the material. After that time the following procedures should be implemented:

### Plants found in water depths >3”

- 1) Stems are cut under the water surface two or three times during the growing season. When the stems are under water, the rhizomes are unable to receive an air supply, which is detrimental to the plant.
- 2) Material may be removed and composted.
- 3) For additional control, apply an herbicide solution containing 2% glyphosate or imazapyr, a surfactant or MSO, ammonium sulfate, and marking dye on new shoots after the initial cutting. Backpack sprayers are typically used. If plant densities are relatively low, this method is not generally used because there is an increased chance of impacting the surrounding, native vegetation through drift since glyphosate and imazapyr are non-selective herbicides.
- 4) If single plants or small clusters are present, apply solution containing 5% glyphosate or imazapyr to the plant using the “Glove of Death” technique. The technique involves spraying the solution onto a cotton glove that is worn by the applicator over chemically resistant gloves; the applicator then takes hold of the plant near the base and runs the cotton glove up the plant stem.

### Plants found along the shoreline and in water depths <3”

- 1) Seed heads, if present, should be cut and properly disposed of at a licensed landfill.
- 2) A herbicide solution, including the chemical (Rodeo®, Habitat®, etc.), a surfactant or MSO, ammonium sulfate, and marking dye, should be applied in a manner similar to the methods discussed above for purple loosestrife control.

Herbicide applications should occur in August or September to achieve best results. Since much of the competing vegetation has been removed, the need for good pro-active cattail control will be important as they grow in the newly opened space. However, as long as they are removed the native vegetation will spread.

## Giant Reed Grass

Like reed canary grass, giant reed grass can be very aggressive. The most current research and our fieldwork indicate that the following steps when implemented on mature plants are very effective control methods:

### Single Plants or Small Clusters

- 1) Solution containing 25-30% glyphosate or imazapyr is applied to the plant using the “Glove of Death” technique in August or September. The technique involves spraying the solution onto a cotton glove that is worn by the applicator over chemically resistant gloves; the applicator then takes hold of the plant near the base and runs the cotton glove up the plant stem.

Large Clusters or Populations

- 1) Plants are tied together in manageable groups
- 2) Vegetation is cut approximately half way up the stems with loppers
- 3) Solution containing 25-30% glyphosate or imazapyr is sprayed on cut stems with either backpack sprayers or spray bottles in August or September.

Or

- 1) Cut/mow plants in late June or early July
- 2) Broadcast spray re-growth in late August or September with a solution containing 2-5% imazapyr on the target plants. Backpack sprayers are typically used.

Methods for the control of other invasive species that may be identified within the community during maintenance operations shall follow standard control practices within the industry or identified by the WDNR or the University of Wisconsin Extension.

Vegetation Establishment

To assist with re-vegetation of the open water community, six clusters of submergent aquatic plants (Table 2) shall be installed in water depths ranging from 24-36” in depth between mid-June and the end of July. Plant stock shall be wild ecotype indigenous to Wisconsin or have natural origins within a 250 mile radius of the planting site. The restoration plan indicates the plant’s approximate locations as site conditions will dictate their final installation point (Appendix E). Each cluster will contain 175 plants composed of a mixture of the below species. Plants will be installed on 12” centers by making a slit in the existing substrate with either the installer’s hand or an instrument such as a tree planting bar. Once the hole is made, the plug or plant’s roots will be installed. The entire root mass will be inserted to a depth that ensures the plant is secure and will not dislodge. If the nursery recommends additional means to secure the material to the substrate such as using staples or weights, they shall be utilized to ensure successful establishment. Periodic site visits shall be conducted during the weeks following the planting to re-install vegetation that has become dislodged.

**Table 2. Submergent Aquatic Species, Planting Depths and Quantities.**

<i>Species</i>		<b>Planting Depth</b>	<b>No. of Plants Required</b>
<b>Common Name</b>	<b>Scientific Name</b>		
Coontail	<i>Ceratophyllum demersum</i>	24-36”	150
Needle Rush	<i>Eleocharis acicularis</i>	24”	150
Water Smartweed	<i>Persicaria amphibia</i>	24”	150
Floating-leaf Pondweed	<i>Potamogeton natans</i>	24”	150
Long-leaved Pondweed	<i>Potamogeton nodosus</i>	24”	150
Sago Pondweed	<i>Stuckenia pectinata</i>	24-36”	150
Water Celery	<i>Vallisneria americana</i>	24-36”	150
		<b>TOTAL</b>	<b>1,050</b>

The submergent plants are to be planted in circular groupings that are approximately 15 feet in diameter. Once installation within a pod is complete, they shall be surrounded by wire to protect them from carp and other herbivores. The protective cages shall be constructed from 14 gauge welded wire with 2” x 4” openings. The wire shall be 48” in height and attached to 5 ½ - 6’ metal t-posts placed at roughly five-foot intervals around the outer perimeter of the planting zone. The posts shall be installed within the substrate so they are stable and secure. Wire shall then be fastened to the posts in three (3) locations

utilizing 8" UV stabilized zip ties (Appendix F - Carp Fencing Detail). Irregular shaped groupings are acceptable as long as they are adequately protected with the above fencing system. To increase visibility for potential boaters within the area, the upper portion of the metal posts shall be painted in a highly visible color and marked with reflectors in a manner acceptable to the City of Marinette and the WDNR. The fencing system shall be repaired and maintained for a minimum of two years (2015-2016) after installation and then removed in the fall of 2016. If additional protection is warranted, the fencing shall remain through 2017.

### Habitat Structure Installation

Due to a lack of structure within the water column for aquatic organisms, woody debris in various forms will be added to the Open Water Community. Sunken log structures are expected to provide cover and habitat for a variety of aquatic insects, amphibians, reptiles and fish. Exposed portions of trees placed within the water along the shoreline will provide feeding and resting opportunities for a diverse group of amphibians, reptiles, mammals and birds.

A Chapter 30 permit was issued by the WDNR to conduct the dredging operations and ecological restoration activities, but these activities were not defined. Because each of the below structures will be placed in a navigable water of the state, additional permits will likely be required. Restoration activities must adhere to Wisconsin Administrative Codes NR 103, NR 323, and NR 353. Prior to work beginning on-site, it will be necessary to obtain permit coverage. General Permits include Wetland Conservation Activities, Habitat Structure – Fish Half Log, Habitat Structure – Fish Sticks, Habitat Structure – Wildlife Nesting Structure and Lakeshore Erosion Control – Biological. Sunken logs are not currently covered under a general permit; therefore, a Chapter 30 Individual Permit will likely be required for placement of these structures.

In addition to the woody debris, nesting platforms for Forster's terns will be placed in the open water community to improve additional habitat opportunities for this species. The tern is considered a SGCN within the Northern Lake Michigan Coastal Ecological Landscape; therefore, efforts to improve their populations are being considered since suitable habitat is expected to be present as part of this restoration.

### **Sunken Logs**

When the harbor was dredged to remove contaminated sediment in 2014, the contractor removed many sunken timbers from within the area. The logs were salvaged and stockpiled. The wood likely provided some limited habitat and cover opportunities; therefore, we are recommending several of the logs be sunk in the deep water portions (7-11') of the open water community to restore and improve the underwater habitat. Rather than just sinking the wooden timbers so they lay on the bottom of the harbor, a series of three logs of varying lengths (10-20') and diameter (8-16") shall be cabled together in a crisscross fashion and dropped through the water column (Appendix F – Sunken Log Detail). The logs were at one time waterlogged, which will reduce their buoyance. Cabled together the logs would likely sink to the bottom and not move with wave action or water current; however, to ensure the materials sink and remain in place, one end of each log shall have concrete cast around it prior to them being cabled together. The concrete cast shall be one-foot thick around the entire timber and a minimum of 2 feet of the log's end shall be covered. The design will ensure space is created above the harbor bottom to provide cover. Six such structures (18 salvaged logs) shall be placed within the open water community. To improve cover within an area, two structures shall be placed in close proximity to one another or so they overlap slightly. The restoration plan indicates the structure's approximate locations (Appendix E). Installation of the log structures can be done during the summer of 2015 after July 1<sup>st</sup>, unless cleared by the WDNR to do so earlier, by pulling them off a barge into position or they may be placed on the ice during the winter of 2015-2016, if conditions permit, and allowed to sink in the spring during ice melt.

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## Half Logs

Four half log structures will be placed within 100 feet of the shoreline at a water depth of approximately 2-4 feet where the substrate is primarily sand. Appendix E indicates the structure's approximate locations; site conditions will dictate their final installation point. Logs salvaged during the dredging operation shall also be utilized to construct these structures. Timbers having a diameter of 16-20 inches shall be cut into 6-8 foot lengths and then then cut in half lengthways, resulting in a finished product with a flat bottom and rounded top. To create space between the structure and harbor bottom, two concrete cinder blocks  $\leq 12$ " in height will be used attached as spacers. Two six foot reinforced rods will be used to anchor the blocks to each log and secure the structure into the sediment (Appendix F – Half Log Detail). Installation of the half log structures can be done during the summer of 2015 after July 1<sup>st</sup>, unless cleared by the WDNR to do so earlier.

## Fish Sticks

Trees to be utilized for these structures shall be hardwood species such as oak that range from 40-70 feet in height with a minimum diameter of 8". Trees shall have intact tops with multiple branches to provide underwater structure and cover. Trees will be freshly harvested no more than four weeks prior to installation from an off-site location and transported to the restoration site for placement. Five groupings with three to four trees per group will be placed along the shoreline on the south side of the open water community (Appendix E). The groups will be spaced approximately 50 feet apart with final placement based on site conditions. Trees shall be placed near shore with their trunks emerging approximately 10-15' from the water and resting on the shoreline. Tops shall extend into the adjacent shallow water up to depths of roughly three feet. To ensure the trees remain in place and are not moved by fluctuating water levels, they will be anchored to 3" diameter galvanized steel pipes located on shore. Because of safety concerns with recreational users in the areas, the 10-12' steel piping will be driven subsurface so the top of the pipe is approximately one foot below ground and covered. Prior to setting the pipe, each one will be drilled to allow 3/8" galvanized steel cables to be attached with cable clamps. Once the pipes have been set, cables from the pipes will be attached to the trees. Two pipes will be used per grouping of trees; and, each pipe will be attached to two separate tree trunks within the group. Each tree grouping will be secured together around each trunk with a minimum 3/8" galvanized cable and cable clamps (Appendix F – Fish Stick Detail). Installation of the fish sticks can be done during the summer of 2015 after July 1<sup>st</sup>, unless cleared by the WDNR to do so earlier, by putting them into position with heavy equipment.

## Forster's Tern Nesting Platforms

Since this species is a colonial nester, a group of ten pre-constructed nest platforms will be placed in a portion of the open water community that was recently composed of emergent vegetation (Appendix E). Water depths will range from 1-2' in depth. Although the platforms may not be immediately surrounded and sheltered by stands of emergent vegetation, future expansion of the Emergent Aquatic zone should provide a suitable surrounding to encourage potential tern nesting. Instructions for constructing the platforms can be found in Appendix F. Once constructed, they are to be filled with wet, decomposing marsh vegetation, which can be gathered from the restoration site. The cattail leaves required to create a shaded corner on the platform for tern chicks can also be collected on-site. When the platforms are placed in the water, the 1/4" polypropylene anchor rope installed during construction, which shall be approximately four feet in length, will be attached to a brick to keep the nests from floating away, but allow for a potential rise in water. Platforms may be placed as early as June 1<sup>st</sup>, but tern nesting will have likely already begun. Their presence in 2015 will expose potential future occupants to their presence.

## ***Emergent Aquatic – Wild Rice***

The emergent zone was previously dominated by giant reed grass; however, herbicide applications completed in the fall of 2012 and 2014 as part of the Menekaunee Harbor restoration have significantly reduced or eliminated emergent vegetation within this zone. Mowing operations in the winter of 2015 removed most of the dead material. The lack of existing vegetation, rise in water levels nearly two feet and location adjacent to a source of flowing water provides an opportunity to potentially re-establish wild rice within the area as it was historically found in the Menominee River.

Based on correspondence with Peter David of the Great Lakes Indian Fish & Wildlife Commission, wild rice grows in 6-36” of standing water with 18-24” being the ideal depth. Although conditions will change in the future as water levels drop or rise, much of the proposed planting zone falls within the optimum water depth; therefore, we believe an effort to establish the species is worthwhile. Mr. David also recommends establishment within a large enough area (> 1 acre) so the stand can withstand wildlife browse as this species is utilized as a food source by a variety of birds and mammals. Rice beds also provide good brood rearing habitat and cover for waterfowl and nesting opportunities for other wetland dependent birds. The emergent plants also provide excellent nursery areas for amphibian and fish species.

In addition to providing excellent opportunities for wildlife, wild rice has significant historical and cultural value. The seed has long been a staple within the diets of Native Americans living within its range including the Menominee. According to Mr. Guy Reiter, Menominee Nation historian and anthropologist, the tribe’s creation story indicates they came from the mouth of the Menominee River. Mr. Reiter says, “Menominee translates to the ‘people of the wild rice’. Our elders say that the rice follows us where ever we go. Our elders say that before we plant ‘Maehnomah’ (wild rice), a prayer and offerings are done to have a successful crop”. The Menominee Nation’s deep connection with the area and “Maehnomah” provides this project with an additional opportunity to incorporate traditional ceremonial activities into the project. Mr. Reiter states, “It would be an honor to be able to help restore our rice back on the river plus for our tribe to reconnect with the area”.

The wild rice bed will be the main restoration component within this community; however, the installation of some woody debris (brush pile) and rock will help increase habitat diversity by providing cover, loafing, basking and feeding opportunities both above and below water within the community for a variety of invertebrate, fish, amphibian, reptile, mammal and bird species.

### **Site Preparation - Invasive Species Control**

The Emergent Aquatic – Wild Rice Planting Zone shall continue to have non-native and invasive species controlled to ensure overall restoration success. Site preparation activities discussed in the Open Water with Submergent Aquatic Vegetation Zone shall be followed.

### **Vegetation Establishment**

To assist with re-vegetation, wild rice shall be seeded at a 100 pounds per acre throughout the Emergent Aquatic – Wild Rice Planting Zone (Appendix E) in water depths ranging from roughly 6-30” in depth during the fall of 2015. The exact seeding location will be established in the field based on current site conditions. Sowing dates will vary depending on the seed source, but should occur between October 15<sup>th</sup> and November 30<sup>th</sup>, 2015. The below criteria regarding seed will be followed:

- 1) Native seed stock shall be wild ecotype indigenous to Wisconsin or have natural origins within a 250 mile radius of the planting site.

- 2) Seed shall come from a source harvested during the fall of 2015. Wild Rice shall be sown within a few days of harvest.
- 3) If seeding must be delayed, rice must be adequately stored in grain sacks within a water source to prevent it from drying out or heating up.
- 4) Seed “finished” for human consumption shall not be utilized.

Seed shall be distributed by hand from a watercraft that allows suitable access to the entire planting zone. Rice shall be scattered as evenly as possible throughout the entire seeding zone. Seeding shall not occur during the following conditions:

- 1) Frozen water conditions
- 2) Wind speeds >10 miles per hour

### Habitat Structure Installation

Due to a lack of structure within the water column for aquatic organisms, woody debris and rock will be added to the Emergent Aquatic – Wild Rice Planting Zone. Brush and rock piles with components below water are expected to provide cover and habitat for a variety of aquatic insects, amphibians, reptiles and fish, while the exposed portion of the pile will provide feeding and resting opportunities for a diverse group of amphibians, reptiles, mammals and birds.

A Chapter 30 permit was issued by the WDNR to conduct the dredging operations and ecological restoration activities, but these activities were not defined. Because each of the below structures will be placed in a navigable water of the state, additional permits will likely be required. Restoration activities must adhere to Wisconsin Administrative Codes NR 103, NR 323, and NR 353. Prior to work beginning on-site, it will be necessary to obtain permit coverage. Neither rock nor brush piles appear to be currently covered under a general permit; therefore, a Chapter 30 Individual Permit will likely be required for placement of these structures.

### **Brush Pile**

Appendix E indicates the structure’s location. During the winter of 2014 a tree top was placed at this location and has remained. The existing top shall be used as the base for beginning construction of the brush pile. To help ensure the structure remains in place, three 6-8’ long logs with a diameter of 6-8” shall be placed on the top with one end resting on the existing tree top. If available, logs salvaged during the dredging operation shall also be utilized to construct these structures. Similar to the fish stick construction, the 3 logs shall be secured to the tree top with a minimum 3/8” galvanized cable and cable clamps. The opposite ends of the 3 logs shall then be secured with “duckbill” earth anchors, one for each log. Anchors shall be driven a minimum of 3’ into the substrate. The opposite end shall then be cabled to the log. The anchoring system shall at a minimum be composed of a 3” anodized aluminum anchor, 1/8” galvanized cable that is 5 feet in length and galvanized cable clamps to secure the system to the logs (Appendix F – Brush Pile Cabling Detail). Once the base is secure, limbs and sticks found throughout the restoration site shall be woven and piled on the logs and top to create the pile (Appendix F – Brush Pile Detail). Tops from trees to be removed from the south shore should provide adequate material; however, if enough debris is not available, the Contractor shall find an off-site location. The City of Marinette’s composting site may provide the necessary material. Any imported material must be “disease free”. When complete, the pile shall be 12-15’ in diameter and roughly five feet in height, resulting in approximately three feet above the existing waterline. Due to site conditions, materials will need to either be brought in and placed by hand or placed by equipment from a boat or barge to ensure minimal damage to the remaining restoration area. Installation of the brush pile can be done during the summer of 2015 after July 1<sup>st</sup>, unless cleared by the WDNR to do so earlier.

## **Rock Pile**

A rock pile shall be constructed in the approximate location shown in Appendix E; however, site conditions will dictate its final installation point since water depths shall be no more than 2 feet in depth. Rounded field stone ranging in size from 6-36" shall be placed in a manner that creates an interlocking, stable mound. The base shall be roughly 10 feet wide with the top extending a minimum of three feet above the waterline. One side of the pile shall have a shelf near the water line to improve use by turtles and amphibians (Appendix F – Water Rock Pile Detail). Due to site conditions, rocks will need to either be brought in and placed by hand or placed by equipment from a barge to ensure minimal damage to the remaining restoration area. Installation of the rocks can be done during the summer of 2015 after July 1<sup>st</sup>, unless cleared by the WDNR to do so earlier.

## ***Emergent/Floating-Leaved Aquatic***

Like the Emergent Aquatic - Wild Rice Planting Zone, this emergent zone was dominated by giant reed grass; and, herbicide applications were completed in the fall of 2012 and 2014 as part of the Menekaunee Harbor restoration. Invasive species have been significantly reduced or eliminated. Mowing operations in the winter of 2015 removed most of the dead material. The lack of existing vegetation and rise in water levels nearly two feet provides an opportunity to establish a diverse stand of emergent species. Emergent Marsh is considered a High Priority Natural Community within the Northern Lake Michigan Coastal Ecological Landscape; therefore, efforts to improve or restore a similar habitat type are expected to greatly benefit many wildlife species. The installation of native aquatic plants along with some woody debris will help restore habitat within this zone by providing cover, loafing, basking and feeding opportunities for a variety of invertebrate, fish, amphibian, reptile, mammal and bird species.

## **Site Preparation - Invasive Species Control**

The Emergent Aquatic Planting Zone shall continue to have non-native and invasive species controlled to ensure overall restoration success. Site preparation activities discussed in the Open Water with Submerged Aquatic Vegetation Zone shall be followed.

## **Vegetation Establishment**

The restoration plan indicates the approximate planting zone location (Appendix E). The exact planting location will be established in the field based on current site conditions. To assist with re-vegetation of the shallow water community, emergent and floating-leaved aquatic plants (Table 3) shall be installed in water depths ranging from 0-12" in depth between mid-June and the end of July. Plant stock shall be wild ecotype indigenous to Wisconsin or have natural origins within a 250 mile radius of the planting site. Planting these species at shallower water depths ensures an adequate portion of the plant is above water which increases its ability to receive sunlight, take advantage of warmer shallow waters, and minimize the amount of inundation time after storm events. The shallower planting depth will allow the community to fill in more quickly and become well established so the plants can spread into the adjacent Open Water Community and provide additional above water habitat.

Species shall be randomly placed in "clumps" of 5-10 individuals each within their respected planting depth. Aquatic vegetation within a "clump" will be planted on approximate 24" centers throughout the zone. All species within a given "clump" will be the same, and the maximum distance between "clumps" will be five feet. Planting of the live material will be done by making a slit in the substrate with either the installer's hand or an instrument such as a tree planting bar. Once the hole is made, the container holding

the plant shall be gently removed and any encircling roots shall be unwound. Exceptionally long roots shall be shortened. The plug or plant's roots shall then be inserted into the hole. The entire root mass shall be inserted to a depth that ensures the plant is secure and will not dislodge. Native soil material shall be used to backfill the hole. If the nursery recommends additional means to secure the material to the substrate such as using staples or weights, they shall be utilized to ensure successful establishment. Periodic site visits shall be conducted during the weeks following the planting to re-install vegetation that has become dislodged.

**Table 3. Emergent/Floating-Leaved Species, Planting Depths and Quantities.**

<i>Species</i>		Planting Depth	No. of Plants Required
Common Name	Scientific Name		
Common Water-plantain	<i>Alisma subcordatum</i>	0-6"	150
Water-shield	<i>Brasenia schreberi</i>	6-12+"	350
River Bulrush	<i>Bolboschoenus fluviatilis</i>	6-12"	550
Water Sedge	<i>Carex aquatilis</i>	0-3"	450
Bristly Sedge	<i>Carex comosa</i>	0-3"	500
Common Lake Sedge	<i>Carex lacustris</i>	0-3"	450
Great Spike Rush	<i>Eleocharis palustris</i>	0-3"	250
Reed Manna Grass	<i>Glyceria grandis</i>	0-3"	300
Northern Blue Flag	<i>Iris versicolor</i>	0-3"	550
Soft Rush	<i>Juncus effusus</i>	0-3"	325
Yellow Water-lily	<i>Nuphar advena</i>	6-12+"	325
White Water-lily	<i>Nymphaea odorata</i>	6-12+"	250
Pickeral Weed	<i>Pontedaria cordata</i>	0-6"	850
Common Arrowhead	<i>Sagittaria latifolia</i>	0-6"	900
Hardstem Bulrush	<i>Schoenoplectus acutus</i>	6-12"	850
Chair-maker's Rush	<i>Schoenoplectus pungens</i>	0-6"	1,150
Softstem Bulrush	<i>Schoenoplectus tabernaemontani</i>	6-12"	1,400
Common Bur-reed	<i>Sparganium eurycarpum</i>	6-12"	1,400
		<b>TOTAL</b>	<b>11,000</b>

Prior to installing the plants, both carp and goose fencing shall be erected around the planting zone perimeter. The in-water fencing will serve to prevent both carp and geese from accessing the zone via the water. As with the protective cages constructed to protect the submergent aquatic plants, 14 gauge welded wire with 2" x 4" openings will be utilized. The wire shall be 48" in height and attached to 5 1/2 - 6' metal t-posts placed at roughly five-foot intervals along the outer perimeter of the planting zone. The posts shall be installed within the substrate so they are stable and secure. Wire shall then be fastened to the posts in three (3) locations utilizing 8" UV stabilized zip ties (Appendix F - Carp Fencing Detail). To increase visibility for potential boaters within the area, the upper portion of the metal posts shall be painted in a highly visible color and marked with reflectors in a manner acceptable to the City of Marinette and the WDNR. The fencing system shall be repaired and maintained for a minimum of two years (2015-2016) after installation and then removed in the fall of 2016. If additional protection is warranted, the fencing shall remain through 2017.

In addition to the in-water fencing, another fence shall be erected on the landward side of the planting perimeter to prevent geese and deer from walking into the zone (Appendix F – Goose Fencing Detail). The following steps shall be taken:

- 1) Before live plants are installed, 5 1/2 - 6' metal t-posts shall be placed at roughly ten-foot intervals around the outer perimeter of the planting zone. The posts shall be installed within the substrate so they are stable and secure.

- 2) Green safety/snow fence 48” in height shall be attached to each post at a minimum of three (3) locations using utilizing 8” UV stabilized zip ties. Fencing shall be tight once secured.
- 3) Nylon rope or baling twine shall be attached between the inner and outer posts in a cross-hatch pattern over the planting area once planting in a section is completed. Additional metal t-posts will also need to be installed between the carp and goose fencing at roughly 20’ intervals to prevent too much slack in the rope (Appendix F – Goose Fencing Detail). The additional twine will deter geese from flying into the planting.
- 4) Goose fencing shall be maintained throughout two full growing seasons. Provided the plantings are successfully established, the fencing can be removed after October 1<sup>st</sup> and before November 15<sup>th</sup>, 2016; however, if plants need to be replaced and protected through another growing season, the fence shall remain for a third growing season.

### Habitat Structure Installation

Due to a lack of structure within and adjacent to the water for aquatic organisms, woody debris will be added to the Emergent/Floating-Leaved Aquatic Planting Zone. Sections of logs below the water are expected to provide cover and habitat for a variety of aquatic insects, amphibians, reptiles and fish, while the exposed portion of the logs will provide basking and loafing opportunities for a diverse group of amphibians, reptiles and birds.

A Chapter 30 permit was issued by the WDNR to conduct the dredging operations and ecological restoration activities, but these activities were not defined. Because the log structures will be placed in either a navigable water of the state or a wetland, additional permits will likely be required. Restoration activities must adhere to Wisconsin Administrative Codes NR 103, NR 323, and NR 353. Prior to work beginning on-site, it will be necessary to obtain permit coverage. General Permits include Wetland Conservation Activities. Log structures do not appear to be currently covered under a general permit; therefore, either a Chapter 30 or Wetland Individual Permit will likely be required for placement of these structures.

### **Logs**

The logs shall be placed in the approximate locations shown in Appendix E; however, site conditions will dictate their final installation points since water depths shall be shallow enough to allow portions of the logs to remain above the existing water level. Logs salvaged during the dredging operations shall be utilized. The number of logs to be installed at each location will depend on availability once the log structures are constructed for the Open Water Community. One or two wooden timbers of varying lengths (10-20’) and diameter (8-16”) shall be installed so that approximately one half of the log is above water. To help ensure the structures remain in place, they shall be anchored similar to the logs used to construct the in-water brush pile. Each end of the logs shall be secured with “duckbill” earth anchors, two per log. Anchors shall be driven a minimum of 3’ into the substrate. The opposite end shall then be cabled to the log. The anchoring system shall at a minimum be composed of a 3” anodized aluminum anchor, 1/8” galvanized cable that is 5 feet in length and galvanized cable clamps to secure the system to the logs (Appendix F – Log Securing Detail). Due to site conditions, materials will need to either be brought in and placed by hand or placed by equipment from a boat or barge to ensure minimal damage to the remaining restoration area. Installation of the logs can be done during the summer of 2015 after July 1<sup>st</sup>, unless cleared by the WDNR to do so earlier.

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## **Northern Sedge Meadow**

Much of the northern and southern portions of the Northern Sedge Meadow Planting Zone were dominated by giant reed grass; however, herbicide applications completed in the fall of 2012 and 2014 as part of the Menekaunee Harbor restoration have significantly reduced or eliminated the species. Mowing operations in the winter of 2015 removed the dead material. Based on site visits conducted by NES ecologists outside the growing season, the middle portion of this planting zone appears to be dominated by Blue-joint grass (*Calamagrostis canadensis*) and sedges (*Carex spp.*); species that historically dominated this community type. Shrubs were encroaching within the area, but most have perished possibly due to rising water levels. The presence of an apparently intact native community type provides the opportunity to enhance and expand the existing community within this planting zone. Northern Sedge Meadow is considered a High Priority Natural Community within the Northern Lake Michigan Coastal Ecological Landscape; therefore, efforts to improve or restore a similar habitat type are expected to greatly benefit many wildlife species.

Native vegetation establishment will be the main restoration component within this community; however, the installation of some woody debris (brush pile) and nesting structures (bird houses) will help increase habitat diversity by providing cover, loafing, basking, feeding and nesting opportunities for a variety of invertebrate, fish, amphibian, reptile, mammal and bird species.

### **Site Preparation – Litter/Duff Removal**

As mentioned above, dead material throughout the zone was mowed during the early portion of 2015. The operations effectively removed the standing material and chopped much of it into small pieces, but the quantity of material will prove problematic, especially in the northern portion of the zone. In some areas, our ecologists observed more than 3” of litter/duff that had been deposited by the mower. To ensure good seed to soil contact and sunlight availability to germinating seeds, the litter/duff layer must either be spread out or removed from the planting area and properly composted. Due to the wet soil conditions, care will need to be taken to avoid rutting if heavy equipment is utilized. Soil must be visible in 50% of the area with the other 50% containing less than ½” of debris layer.

Other than the litter/duff removal, no other soil disturbing activities are suggested or required as many of the species to be seeded should be surface sown to increase germination rates.

The Enhancement Zone will be over seeded to increase species diversity. Although seeding will occur via hand sowing, the existing vegetation may not allow even seed distribution. Vegetation shall be mowed or trimmed to a height of 2-3” prior to seeding to allow good seed dispersal.

### **Site Preparation - Invasive Species Control**

The northern and southern segments of the Northern Sedge Meadow Planting Zone shall continue to have non-native and invasive species controlled to ensure overall restoration success. These portions of the planting zone are referred to as the re-work areas (Appendix E). Site preparation activities discussed in the Open Water with Submergent Aquatic Vegetation Zone shall be followed. In addition to controlling the aquatic invasive species discussed above, some terrestrial species may invade the site and require attention. Below are some steps that can be taken to address these species. In order to eliminate these unwanted species, a minimum of two (2) or three (3) herbicide applications in combination with mowing activities will be conducted throughout the 2015 growing season to ensure adequate weed control for site preparation. It is possible a native seed bank is present and will respond with the removal of the competing Phragmites; therefore, care shall be taken to salvage populations where feasible rather than conducting broadcast herbicide applications throughout the area.

Although the middle portion of zone contains native species, there are some undesirable species present such as, but not limited to thistles (*Cirsium spp.*), field sow-thistle (*Sonchus arvensis*), curly dock (*Rumex crispus*) and quack grass (*Elytrigia repens*) that shall be controlled through cutting and spot herbicide treats. This area is referred to as the enhancement zone within the community (Appendix E).

### Biennial & Annual Broadleaf Weeds

Sweet clovers (*Melilotus spp.*), wild carrot (*Daucus carota*) and burdock (*Arctium minus*), along with other less aggressive yet undesirable annual and biennial species can be controlled and populations reduced through repetitive cutting. Mowing or hand cutting shall be done when the plants are mature and in the beginning stages of flowering to ensure the best control. Do not mow too often as the plants will begin growing lower to the ground and be more difficult to control through mowing efforts. In the event that individuals are found with mature seed heads, those plants shall be manually cut with machetes or loppers prior to them setting seed, bagged, and removed from the site. All noxious/invasive weeds shall be properly disposed of in a landfill. In rare cases, herbicide could be applied through spot applications, but there is an increased risk of damaging native species within the planting, which can be avoided through the mechanical removal process.

### Perennial Broadleaf Weeds

Canada and bull thistles (*Cirsium arvense* and *C.vulgare*), red, white and alsike clovers (*Trifolium pratense*, *T. repens*, and *T. hybridum*), crown vetch (*Coronilla varia*), and bird's-foot trefoil (*Lotus corniculatus*) along with other aggressive perennial weeds can be controlled to some degree through mowing activities prior to seed set, but full control will require herbicide applications. The steps we recommend following include:

- 1) A herbicide solution, including the chemical (AquaNeat®, Habitat®, Transline®, etc.), a surfactant or MSO, ammonium sulfate, and marking dye, shall be applied through one of the below methods:
  - a) Broadcast spray solution containing a combination of 1% glyphosate or imazapyr and 2/3 to 1 1/3 pint/acre of Transline on the target plants. Backpack sprayers are typically used. If plant densities are relatively low, this method or combination should not be used because there is an increased chance of impacting the surrounding, native vegetation through drift since glyphosate and imazapyr are non-selective herbicides. To reduce impacts with this solution, a spray bottle or hand wicking could be substituted.
  - b) Broadcast spray solution containing 2/3 to 1 1/3 pint/acre of Transline on the target plants. The chemical is more selective and targets broadleaf plants so grasses won't be impacted; however, caution must be used around native forbs. The choice of application will depend on the population size of the targeted species.

*Note: If standing water or saturated soil conditions are present, Transline may not be utilized as it is not an aquatic approved herbicide.*

Ideally these species shall be identified and sprayed either early or late in the growing season prior to or after native plant growth. If species are located during the growing season they shall either be sprayed or cut to prevent seeding. Mature seed heads shall be removed and properly disposed of to prevent further spread.

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## Perennial Grasses

Reed canary grass, fescues (*Festuca spp.*), smooth brome and cheat grass (*Bromus inermis* and *B. tectorum*), Kentucky bluegrass (*Poa pratensis*), and quack grass along with other aggressive perennial grasses can be controlled to some degree, like the perennial broadleaf weeds, through mowing activities prior to seed set, but full control will require herbicide applications. Although these grasses can be located and identified early in the growing season, they may be more easily identified during the flowering stage; therefore, additional steps may be necessary to prevent their spread. The steps we recommend following include:

### Single Plants or Small Clusters

- 1) Seed heads shall be cut and placed in thick, plastic bags and removed to a licensed landfill facility for proper disposal.
- 2) A herbicide solution, including the chemical (AquaNeat® or Rodeo®, Habitat®, Intensity® One, etc.), a surfactant or MSO, ammonium sulfate, and marking dye, shall be applied through one of the below methods:
  - a) Apply solution containing 5% glyphosate or imazapyr or 2% clethodim to the plant using the “Glove of Death” technique. The technique involves spraying the solution onto a cotton glove that is worn by the applicator over chemically resistant gloves; the applicator then takes hold of the plant near the base and runs the cotton glove up the plant stem.
  - b) Broadcast spray solution containing 2% glyphosate or imazapyr or 1% clethodim on the target plants. Backpack sprayers are typically used. If plant densities are relatively low, this method is not generally used because there is an increased chance of impacting the surrounding, native vegetation through drift since glyphosate and imazapyr are non-selective herbicides. The exception would be with the use of clethodim as this chemical is grass selective; however, caution would still need to be taken when spraying around native grass species.

### Large Clusters or Populations

- 1) Grass shall be cut prior to seed development and allowed to re-grow.
- 2) Conduct a broadcast spray as discussed above.

*Note: If standing water or saturated soil conditions are present, Intensity One may not be utilized as it is not an aquatic approved herbicide.*

If the grass species can be accurately identified prior to seed head development, the plants shall either be hand wicked or broadcast sprayed in mid to late May to eliminate additional tasks. A follow-up treatment may be required in the fall.

## Vegetation Establishment

To assist with re-vegetation, a combination of seeding and planting activities shall occur throughout the Northern Sedge Meadow Planting Zone (Appendix E). The selected grasses, sedges, rushes, ferns and wildflowers for the community can be found in Tables 4 and 5. Species were chosen to provide an aesthetically pleasing community in an urban setting, while providing wildlife habitat and ground cover.

Native seed application rates are based on applying 180-210 seeds per square foot. The quantity of seed required per acre (Table 4) is based on purchasing “Pure Live Seed (PLS)”. These rates shall be utilized in the Re-work Zones while ½ those rates shall be utilized in the Enhancement Zone due to the presence of a well-established native community. The below criteria regarding seed shall be followed:

- 1) All native seed stock shall be wild ecotype indigenous to Wisconsin or the first tier counties in those states bordering Wisconsin or have natural origins within a 250 mile radius of the intended planting site.
- 2) Grasses classified as “Agricultural Grasses” shall be PLS as specified. Other seed shall be “clean” according to high quality industry standards.
- 3) Seed shall not be more than one year old at time of seeding.

The native seed along with a cover crop shall be dormant sown between October 15<sup>th</sup> and November 30<sup>th</sup>, 2015. Due to wet soil conditions, seed shall be hand sown. The seed shall be mixed with a carrier (e.g., sawdust, vermiculite, moist sand, etc.) to ensure even seed distribution; however, if a hand operated Truax seed slinger is utilized then a carrier is not required.

**Table 4. Northern Sedge Meadow Herbaceous Species and Seeding Rate.**

Species		Ounces Required Per Acre
Common Name	Scientific Name	
<i>Forbs</i>		
Canada Anemone	<i>Anemone canadensis</i>	0.9
Angelica	<i>Angelica atropurpurea</i>	4.7
Marsh Milkweed	<i>Asclepias incarnata</i>	2.7
Shining Aster	<i>Aster firmus</i>	0.4
Panicled Aster	<i>Aster lanceolatus</i>	0.7
Swamp Aster	<i>Aster puniceus</i>	0.9
Flat-top Aster	<i>Aster umbellatus</i>	1.4
Nodding Bur Marigold	<i>Bidens cernua</i>	2.6
Common Beggar's Ticks	<i>Bidens frondosa</i>	2.2
Turtlehead	<i>Chelone glabra</i>	0.6
Water Hemlock	<i>Cicuta maculata</i>	0.9
Cinnamon Willow Herb	<i>Epilobium coloratum</i>	0.4
Joe Pye Weed	<i>Eupatorium maculatum</i>	2.1
Boneset	<i>Eupatorium perfoliatum</i>	1.0
Grass-leaved Goldenrod	<i>Euthamia graminifolia</i>	0.5
Sneezeweed	<i>Helenium autumnale</i>	1.5
Saw-tooth Sunflower	<i>Helianthus grosseserratus</i>	1.0
Spotted Touch-me-not	<i>Impatiens capensis</i>	1.4
Great Blue Lobelia	<i>Lobelia siphilitica</i>	0.5
Water Horehound	<i>Lycopus americanus</i>	0.8
Wild Mint	<i>Mentha arvensis</i>	0.4
Monkey Flower	<i>Mimulus ringens</i>	0.2
Pinkweed	<i>Persicaria pensylvanica</i>	1.1
Obedient Plant	<i>Physotegia virginiana</i>	0.7
Marsh Cinquefoil	<i>Potentilla palustris</i>	0.3
Common Mountain Mint	<i>Pycnanthemum virginianum</i>	0.7
Annual Buttercup	<i>Ranunculus sceleratus</i>	1.5
Wild Golden Glow	<i>Rudbeckia laciniata</i>	3.9
Tall Water Parsnip	<i>Sium suave</i>	0.6
Late Goldenrod	<i>Solidago gigantea</i>	0.3
Swamp Goldenrod	<i>Solidago patula</i>	0.6
Woundwort	<i>Stachys palustris</i>	0.8

**Table 4. Continued.**

Purple Meadow Rue	<i>Thalictrum dasycarpum</i>	2.0
Blue Vervain	<i>Verbena hastata</i>	3.1
Culver's Root	<i>Veronicastrum virginicum</i>	0.3
Golden Alexanders	<i>Zizia aurea</i>	6.6
<i>Grasses/Sedges/Rushes</i>		
Fringed Brome	<i>Bromus ciliatus</i>	3.6
Blue-joint Grass	<i>Calamagrostis canadensis</i>	1.3
Water Sedge	<i>Carex aquatilis</i>	0.6
Crested Oval Sedge	<i>Carex cristatella</i>	1.2
Porcupine Sedge	<i>Carex hystericina</i>	5.2
Common Lake Sedge	<i>Carex lacustris</i>	0.8
Broad-leaved Woolly Sedge	<i>Carex pellita</i>	0.5
Deflexed Bottle-brush Sedge	<i>Carex retrorsa</i>	2.0
Awl-fruited Sedge	<i>Carex stipata</i>	4.6
Tussock sedge	<i>Carex stricta</i>	3.4
Common Yellow Lake Sedge	<i>Carex utriculata</i>	2.7
Walter's Barnyard Grass	<i>Echinochloa walteri</i>	4.6
Great Spike Rush	<i>Eleocharis palustris</i>	0.9
Virginia Wild Rye	<i>Elymus virginicus</i>	21.2
Rattlesnake Grass	<i>Glyceria canadensis</i>	3.3
Fowl Manna Grass	<i>Glyceria striata</i>	2.8
Dudley's Rush	<i>Juncus dudleyi</i>	0.1
Common Rush	<i>Juncus effusus</i>	0.3
Rice Cut Grass	<i>Leersia oryzoides</i>	1.1
Fowl Bluegrass	<i>Poa palustris</i>	1.4
Dark Green Bulrush	<i>Scirpus atrovirens</i>	1.5
Wool Grass	<i>Scirpus cyperinus</i>	0.5
Prairie Cord Grass	<i>Spartina pectinata</i>	2.7
<b>TOTAL</b>		<b>116.6</b>

In addition to seeding, live plants (Table 5) shall be installed either between October 15 and November 30, 2015 when they are dormant or in late May to early June 2016 to increase diversity and provide quicker establishment as some species are slow to germination and establish. Plant stock shall be wild ecotype indigenous to Wisconsin or have natural origins within a 250 mile radius of the planting site. The exact planting locations will be established in the field based on current site conditions. Species shall be randomly placed in “clumps” of 5-10 individuals and planted on approximate 18” centers throughout the zone. Plant pits shall be prepared by excavating a hole with either the installer’s hand, tree spade, shovel or power auger to a minimum diameter of 3-5”, where feasible, and sufficiently deep to allow the root collar to be at the original grade after the potted plant is positioned in the hole. Once the hole is made, the container holding the plant shall be gently removed and any encircling roots shall be unwound. Exceptionally long roots shall be shortened. The hole shall then be backfilled with native soil material.

**Table 5. Northern Sedge Meadow Live Plant Species, Quantities and Sizes.**

<i>Species</i>			
Common Name	Scientific Name	Quantity	Minimum Pot Size
<i>Sedges/Grasses</i>			
Porcupine Sedge	<i>Carex hystericina</i>	100	2.5"
Common Lake Sedge	<i>Carex lacustris</i>	100	2.5"
Tussock Sedge	<i>Carex stricta</i>	250	2.5"
Prairie Cord Grass	<i>Spartina pectinata</i>	150	2.5"
<i>Ferns</i>			
Ostrich Fern	<i>Matteuccia struthiopteris</i>	100	4.5"
Sensitive Fern	<i>Onoclea sensibilis</i>	200	4.5"
<i>Forbs</i>			
Northern Blue Flag	<i>Iris versicolor</i>	250	2.5"
Marsh Marigold	<i>Caltha palustris</i>	50	4.5"
<b>TOTAL</b>		<b>1,200</b>	

### Habitat Structure Installation

Due to a lack of structure and nesting opportunities within the community, woody debris (brush pile) and bird houses will be added to the Northern Sedge Meadow Planting Zone. The brush pile is expected to provide cover, habitat and feeding opportunities for a variety of aquatic insects, amphibians, reptiles, mammals and birds. The addition of bird houses will benefit cavity nesting species, in particular tree swallows and wood ducks.

A Chapter 30 permit was issued by the WDNR to conduct the dredging operations and ecological restoration activities, but these activities were not defined. Because each of the below structures will be placed in a navigable water of the state, additional permits will likely be required. Restoration activities must adhere to Wisconsin Administrative Codes NR 103, NR 323, and NR 353. Prior to work beginning on-site, it will be necessary to obtain permit coverage. General Permits include Wetland Conservation Activities and Habitat Structure – Wildlife Nesting Structure. Brush piles are not currently covered under a general permit; therefore, a Chapter 30 or Wetland Individual Permit will likely be required for placement of these structures.

### **Brush Pile**

The brush pile shall be placed in the approximate location shown in Appendix E. The base of the pile shall be constructed by placing three 6-8' long logs with a diameter of 6-8" on the substrate and then placing three similarly sized timbers on those in a perpendicular fashion. Once the base is complete, limbs and sticks found throughout the restoration site shall be woven and piled on the logs to create the pile (Appendix F – Brush Pile Detail). Tops from trees to be removed from the south shore should provide adequate material; however, if enough debris is not available, the Contractor shall find an off-site location. The City of Marinette's composting site may provide the necessary material. When complete, the pile shall be 12-15' in diameter and roughly five feet in height. Due to site conditions, materials will likely need to be brought in and placed by hand or placed by equipment that will ensure minimal damage to the remaining restoration area. Installation of the brush pile can be done during the summer of 2015 after July 1<sup>st</sup>, unless cleared by the WDNR to do so earlier.

## Bird Houses

Although tree swallows and wood ducks are relatively common throughout the area, the existing site lacks suitable nesting habitat for either species. Both species are well adapted to utilizing nest boxes; therefore, installation of these structures is a simple, cost-effective means to increase wildlife use within the restoration site. A total of four tree swallow and one wood duck nesting box shall be placed within the Northern Sedge Meadow Planting Zone (Appendix E). Instructions for constructing the nesting boxes can be found in Appendix F or they may be purchased. Once constructed or purchased, the following instructions shall be followed for placement and installation:

### Tree Swallow/Eastern Bluebird

- 1) Entrance hole shall be placed so it is facing East
- 2) Nesting box shall be mounted 5-6 feet above the ground on 3/4" Rigid Metal Conduit (RMC) made of stainless steel.
- 3) Instructions for mounting the box on the RMC are as follows:
  - a) Remove and recycle 2 feet of a standard 10 foot section of 3/4" RMC
  - b) Using a post pounder, drive 2 feet of the RMC into the ground so 6 feet is left above ground
  - c) Loosely attach stainless steel 3/4" conduit 2-hole straps to the back of the nesting box with 3/4" stainless steel deck screws. The top strap shall be attached just below the roof while the bottom strap shall be attached even with the floor.
  - d) Slip straps on the nesting box onto the RMC, adjust to the recommended height listed above and tighten the screws to secure the box to the RMC.

### Wood Duck

- 1) 4" of wood shavings or a mix of shavings and wood chips shall be placed in the nest box
- 2) Entrance hole shall be placed so it is facing the water.
- 3) Nesting box shall be mounted 6 feet above the ground on a Schedule 40 Galvanized Steel Pole with an inside diameter of  $\geq 2"$ . The pole shall be 8' in length.
- 4) Using a post pounder, drive 2 feet of the steel post into the ground so 6 feet is left above ground.
- 5) A standard mounting bracket such as the one sold by Lone Star Woodcraft or equal may be utilized; however, the bracket shall be made flush with the box edges when complete. Otherwise, the contractor shall follow instructions at the following website: <http://www.batcon.org/pdfs/bathouses/InstallingYourBatHouseWoodenPostSteel%20Pole.pdf>. Although the instructions are for the installation of a bat house, the procedure for installing a house on a steel pole can be applied.
- 6) Mounting shall allow a slight (1/8") forward lean to allow easier duckling exit

Nest boxes may be mounted to a cedar post rather than a stainless steel pole; however, a predator guard (Appendix F) must be installed to prevent feral cat and raccoon predation.

Although nesting season will have begun, the nesting boxes shall be installed in early June as they may be utilized by a pair of birds raising a second brood during 2015. Otherwise, they will be in place for use during the 2016 breeding season.

## **Shrub-Carr**

Much of the northern and southern portions of the Shrub-Carr Planting Zone were also dominated by giant reed grass; however, herbicide applications completed in the fall of 2012 and 2014 as part of the Menekaunee Harbor restoration have significantly reduced or eliminated the species. Mowing operations in the winter of 2015 removed the dead material. Based on site visits conducted by NES ecologists outside the growing season, the middle portion of this planting zone appears to be dominated by Blue-joint grass (*Calamagrostis canadensis*) and sedges (*Carex spp.*); species that historically dominated this community type. Shrubs, primarily willows (*Salix spp.*) and a few cottonwood (*Populus deltoides*) trees are also found within this area. The presence of an apparently intact native community type provides the opportunity to enhance and expand the existing community within this planting zone. Efforts to improve or restore a similar habitat type are expected to greatly benefit many wildlife species.

Native vegetation establishment will be the main restoration component within this community; however, a few dead trees exist along the eastern edge of the community. The snags shall be left to increase habitat diversity by providing feeding and possible nesting/den opportunities for a variety of invertebrate, mammal and bird species.

An existing trail utilized by City residents passes through a portion of community. In an effort to educate individuals regarding the project, restoration signs shall be posted. Although the trail will be left open, fencing similar to the goose exclusion fence (Appendix F) shall be erected on both sides of the trail marked on the restoration map (Appendix E).

### **Site Preparation – Litter/Duff Removal**

Activities within this community shall mirror those conducted in the Northern Sedge Meadow.

As with the Northern Sedge Meadow, the Enhancement Zone within this community will be over seeded to increase species diversity. Although seeding will occur via hand sowing, the existing vegetation may not allow even seed distribution. Vegetation shall be mowed or trimmed to a height of 2-3” prior to seeding to allow good seed dispersal. Existing shrubs shall not be cut down in the process.

### **Site Preparation - Invasive Species Control**

Activities within this community shall be similar to those conducted in the Northern Sedge Meadow as there are both Re-work and Enhancement Zones within the community (Appendix E).

### **Vegetation Establishment**

To assist with re-vegetation, a combination of seeding and planting activities shall occur throughout the Shrub-Carr Planting Zone (Appendix E). The selected grasses, sedges, rushes, ferns and wildflowers for the community can be found in Tables 6 and 7. Species were chosen to provide an aesthetically pleasing community in an urban setting, while providing wildlife habitat and ground cover.

Native seed application rates are based on applying 180-210 seeds per square foot. The quantity of seed required per acre (Table 6) is based on purchasing “Pure Live Seed (PLS)”. These rates shall be utilized in the Re-work Zones while ½ those rates shall be utilized in the Enhancement Zone due to the presence of a well-established native community. Seed requirements shall be the same as those provided in the Northern Sedge Meadow discussion above. The native seed along with a cover crop shall be dormant sown between October 15<sup>th</sup> and November 30<sup>th</sup>, 2015. Due to wet soil conditions, seed shall be hand

sown. The seed shall be mixed with a carrier (e.g., sawdust, vermiculite, moist sand, etc.) to ensure even seed distribution; however, if a hand operated Truax seed slinger is utilized then a carrier is not required.

In addition to seeding, live plants (Table 7) shall be installed either between October 15 and November 30, 2015 when they are dormant or in late May or early June 2016 in a manner similar to those installed in the Northern Sedge Meadow community. Plant stock shall be wild ecotype indigenous to Wisconsin or have natural origins within a 250 mile radius of the planting site.

**Table 6. Shrub-Carr Herbaceous Species and Seeding Rate.**

<b>Species</b>		
<b>Common Name</b>	<b>Scientific Name</b>	<b>Ounces Required Per Acre</b>
<i>Forbs</i>		
Canada Anemone	<i>Anemone canadensis</i>	0.9
Angelica	<i>Angelica atropurpurea</i>	4.7
Marsh Milkweed	<i>Asclepias incarnata</i>	2.7
Shining Aster	<i>Aster firmus</i>	1.0
New England Aster	<i>Aster novae-angliae</i>	1.1
Swamp Aster	<i>Aster puniceus</i>	0.9
Flat-top Aster	<i>Aster umbellatus</i>	1.4
Nodding Bur Marigold	<i>Bidens cernua</i>	2.6
Common Beggar's Ticks	<i>Bidens frondosa</i>	2.2
Turtlehead	<i>Chelone glabra</i>	0.6
Water Hemlock	<i>Cicuta maculata</i>	0.9
Marsh Cinquefoil	<i>Comarum palustre</i>	0.3
Cinnamon Willow Herb	<i>Epilobium coloratum</i>	0.7
Joe Pye Weed	<i>Eupatorium maculatum</i>	2.3
Boneset	<i>Eupatorium perfoliatum</i>	1.1
Grass-leaved Goldenrod	<i>Euthamia graminifolia</i>	0.5
Sneezeweed	<i>Helenium autumnale</i>	1.5
Saw-tooth Sunflower	<i>Helianthus grosseserratus</i>	3.4
Spotted Touch-me-not	<i>Impatiens capensis</i>	1.4
Cardinal Flower	<i>Lobelia cardinalis</i>	0.9
Water Horehound	<i>Lycopus americanus</i>	0.8
Wild Mint	<i>Mentha arvensis</i>	0.5
Obedient Plant	<i>Physotegia virginiana</i>	0.7
Common Mountain Mint	<i>Pycnanthemum virginianum</i>	0.7
Wild Golden Glow	<i>Rudbeckia laciniata</i>	3.9
Great Water Dock	<i>Rumex orbiculatus</i>	6.1
Tall Water Parsnip	<i>Sium suave</i>	0.6
Late Goldenrod	<i>Solidago gigantea</i>	0.5
Swamp Goldenrod	<i>Solidago patula</i>	0.6
Woundwort	<i>Stachys palustris</i>	0.8
Purple Meadow Rue	<i>Thalictrum dasycarpum</i>	6.6
Blue Vervain	<i>Verbena hastata</i>	3.9
Culver's Root	<i>Veronicastrum virginicum</i>	0.4
Golden Alexanders	<i>Zizia aurea</i>	6.6
<i>Grasses/Sedges/Rushes</i>		
Fringed Brome	<i>Bromus ciliatus</i>	3.6
Blue-joint Grass	<i>Calamagrostis canadensis</i>	1.3
Water Sedge	<i>Carex aquatilis</i>	0.6

**Table 6. Continued**

Crested Oval Sedge	<i>Carex cristatella</i>	1.2
Porcupine Sedge	<i>Carex hystericina</i>	5.2
Common Lake Sedge	<i>Carex lacustris</i>	0.8
Narrow-leaved Woolly Sedge	<i>Carex lasiocarpa</i>	1.3
Broad-leaved Woolly Sedge	<i>Carex pellita</i>	0.5
Deflexed Bottle-brush Sedge	<i>Carex retrorsa</i>	2.0
Awl-fruited Sedge	<i>Carex stipata</i>	4.6
Tussock sedge	<i>Carex stricta</i>	2.9
Common Yellow Lake Sedge	<i>Carex utriculata</i>	2.7
Great Spike Rush	<i>Eleocharis palustris</i>	0.9
Virginia Wild Rye	<i>Elymus virginicus</i>	21.2
Reed Manna Grass	<i>Glyceria grandis</i>	3.5
Fowl Manna Grass	<i>Glyceria striata</i>	2.6
Dudley's Rush	<i>Juncus dudleyi</i>	0.1
Rice Cut Grass	<i>Leersia oryzoides</i>	1.1
Fowl Bluegrass	<i>Poa palustris</i>	1.4
Dark Green Bulrush	<i>Scirpus atrovirens</i>	1.5
Wool Grass	<i>Scirpus cyperinus</i>	0.5
Rufous Bulrush	<i>Scirpus pendulus</i>	1.4
Prairie Cord Grass	<i>Spartina pectinata</i>	2.7
<b>TOTAL</b>		<b>127.4</b>

**Table 7. Shrub-Carr Live Plant Species, Quantities and Sizes.**

<i>Species</i>			
Common Name	Scientific Name	Quantity	Minimum Pot Size
<i>Sedges/Grasses</i>			
Common Lake Sedge	<i>Carex lacustris</i>	100	2.5"
Tussock Sedge	<i>Carex stricta</i>	250	2.5"
Prairie Cord Grass	<i>Spartina pectinata</i>	150	2.5"
<i>Ferns</i>			
Ostrich Fern	<i>Matteuccia struthiopteris</i>	100	4.5"
Sensitive Fern	<i>Onoclea sensibilis</i>	100	4.5"
<i>Forbs</i>			
Northern Blue Flag	<i>Iris versicolor</i>	150	2.5"
Marsh Marigold	<i>Caltha palustris</i>	50	4.5"
<b>TOTAL</b>		<b>900</b>	

The installation of shrubs in the form of potted, bare-root and live stake materials (Tables 8 & 9) will provide the foundation for establishing the overall community. The larger potted material will help establish the community more quickly while the bare-root and live stakes provide additional species diversity and cost savings. The selected shrub species will eventually provide additional cover, nesting and foraging opportunities for the surrounding wildlife.

Shrub stock shall be wild ecotype indigenous to the Upper Midwest and shall have been grown within the same hardiness zone as the Project Site or acclimated to conditions of same hardiness zone for a minimum of two growing seasons. Material shall conform to the species and sizes contained within Table 8 and shall be dormant planted between October 15 and November 30, 2015 throughout the Shrub-Carr Planting Zone (Appendix E). Suitable locations within the community shall be chosen based up current

site conditions. The shrubs shall be randomly scattered planted in clumps of 3-5 individuals on no less than 5' centers.

The shrubs shall be planted by excavating an adequately sized hole for the potted or bare-root material, which in most cases will be created using an auger or shovel. Once the hole is made, potted plants shall be removed from the container and any encircled roots cut with a sharp tool and the sides of the root ball scored in several locations around their perimeter. Exceptionally long roots will be shortened on both potted and bare-root material. Plants shall be placed in the center of the pit and at a depth to ensure the root collar is flush with the existing soil surface. Potted material shall be set on undisturbed soil, while bare-root material shall be set on a mound created at the pit's bottom. Appendix F contains typical planting details for these materials. Roots shall be guided gently downward and outward to prevent root girdling. Salvaged ground placed in the hole shall not be compacted; rather, water shall be poured over the soil to promote natural settling around the root ball. Once settled, fill the remaining hole making sure to use salvaged topsoil to bring up to grade. Water the additional backfill to promote final settling, lightly tamp and add topsoil, if necessary. No soil shall be placed over the root collar and any excess soil shall be removed from the site. Shrubs shall be protected with shelters; however, due to their shape and size, multi-stemmed shrubs may not be tubed.

Live stakes shall conform to the following requirements:

- 1) Stakes shall be wild ecotype indigenous to the Upper Midwest and shall have been harvested within same hardiness zone as the Project Site. Hardiness zones shall conform to "Zones of Plant Hardiness" as provided by U.S. Department of Agriculture.
- 2) Stake dimensions must meet the following:
  - (a) Diameter - ½" – 2"
  - (b) Length – 18" – 24"
- 3) The top of the stake must be cut flush and the butt end cut at a 45 degree angle.
- 4) All branches on the stake must be removed. They shall be trimmed close to the stem without damaging the stake.
- 5) Stakes shall be constructed from native species that are healthy, vigorous stock that is straight wood at least one (1) year old.

Stakes shall be installed on 3' centers between October 15 and November 30, 2015, shortly after they are harvested, by creating a pilot hole with a suitable tool that will allow roughly ¾ of the stake (75%) to be inserted into the soil. If the soils allow, a planting hole may not be necessary and the stake can either be pushed or tapped (using a rubber mallet) into the ground to the required depth. Installing stakes via the latter method will require care so the stakes are not damaged including split tops. Damaged material shall be replaced. Live stakes shall be installed as vertically as possible with two to five (2-5) bud scars present above ground. Additional length shall be removed. Stakes installed in a pilot hole shall have the soil around the stake tamped and watered to eliminate air pockets.

Installation of shrub material shall not be permitted during the following conditions:

- 1) Saturated soil conditions
- 2) Frozen soil conditions
- 3) Temperatures less than 32 degrees Fahrenheit
- 4) Temperatures greater than 90 degrees Fahrenheit

**Table 8. Shrub-Carr Woody Species, Quantities and Sizes.**

<i>Species</i>			
Common Name	Scientific Name	Quantity	Size - Height
<i>Shrubs</i>			
Speckled Alder	<i>Alnus rugosa</i>	15	#5 gallon
Silky Dogwood	<i>Cornus amomum</i>	20	2-4' bare-root
Red-osier Dogwood	<i>Cornus stolonifera</i>	50	2-4' bare-root
Winterberry (Male & Female)	<i>Ilex verticillata</i>	50	2-4' bare-root
Black Currant	<i>Ribes americanum</i>	25	#1-2 gallon
Meadow-sweet	<i>Spiraea alba</i>	50	#2-5 gallon
Bebb's Willow	<i>Salix bebbiana</i>	100	#1-2 gallon
Pussy Willow	<i>Salix discolor</i>	75	#2-5 gallon
American Highbush Cranberry	<i>Viburnum opulus L. subsp. trilobum</i>	15	2-4' bare-root
<b>TOTAL</b>		<b>400</b>	

**Table 9. Shrub-Carr Live Stake Species.**

<i>Species</i>		
Common Name	Scientific Name	No. of Stakes Required
Silky Dogwood	<i>Cornus amomum</i>	100
Red-osier Dogwood	<i>Cornus stolonifera</i>	100
Bebb's Willow	<i>Salix bebbiana</i>	100
Pussy Willow	<i>Salix discolor</i>	100
<b>TOTAL</b>		<b>400</b>

### **Wet-Mesic Forest**

As indicated in Appendix E, there are small groves of trees and many scattered individuals present, most of which are cottonwood. Although difficult to determine because the area was mowed, it appears there are scattered shrubs such as red-osier dogwood (*Cornus stolonifera*) also present. Like the Shrub-Carr Planting Zone, the proposed Wet-Mesic Forest community has areas that will need more attention during the restoration process. A small segment found in the middle portion of this planting zone appears to be a continuation of the native community dominated by Blue-joint grass and sedges; while, the remainder has a mix of native and non-native species present. The presence of an apparently intact native community and existing tree cover provides the opportunity to enhance and expand the existing community within this planting zone. Vegetative components of both northern and southern wet-mesic forests will be utilized for this project. Northern Wet-Mesic Forest is considered a High Priority Natural Community within the Northern Lake Michigan Coastal Ecological Landscape; therefore, efforts to improve or restore a similar habitat type are expected to greatly benefit many wildlife species.

Native vegetation establishment will be the main restoration component within this community; however, the installation of some rock and nesting/roosting structures (bird and bat houses) will help increase habitat diversity by providing cover, feeding, roosting and nesting opportunities for a variety of invertebrate, amphibian, reptile, mammal and bird species. As with the Shrub-Carr Planting Zone, a few dead trees exist within the community. The snags shall be left to increase habitat diversity by providing feeding and possible nesting/den opportunities for wildlife.

The existing trail discussed above in the Shrub-Carr section passes through a portion of this community also. As with the Shrub-Carr community, signs and fencing shall be erected in an effort to educate and protect the project.

## Site Preparation – Litter/Duff Removal

Dense patches of Phragmites were not present within this area; therefore, a thick layer of litter/duff is not present. However, when the site was mowed, several shrubs and small trees were shredded in the process and strewn throughout the area. To prepare the site for seed installation, the soil shall be lightly worked to a depth of ¼” – ½” in depth with a disc and/or harrow. Using these implements may be difficult with too much woody debris. Therefore, larger woody pieces shall be removed and ideally used to construct brush piles found throughout the restoration site. Some woody debris may remain as its presence will help enrich the soils within the community. An NR 216 Construction Site Storm Water Discharge Permit shall be secured from the WDNR prior to earth disturbing activities.

As with the Shrub-Carr, the Enhancement Zone within this community will be over seeded to increase species diversity. Although seeding will occur via hand sowing, the existing vegetation may not allow even seed distribution. Vegetation shall be mowed or trimmed to a height of 2-3” prior to seeding to allow good seed dispersal. Existing shrubs or trees shall not be cut down in the process.

### Site Preparation - Invasive Species Control

Patches of giant reed grass were treated with herbicide in the fall of 2012 and 2014 as part of the Menekaunee Harbor restoration; however, the invasive grass was not the dominant species found within the area. Activities within this community shall be similar to those conducted in the Northern Sedge Meadow as there are both Re-work and Enhancement Zones within the community (Appendix E). Species of particular concern within the re-work zone include quack grass and spotted knapweed.

### Vegetation Establishment

To assist with re-vegetation, a combination of seeding and planting activities shall occur throughout the Wet-Mesic Forest Planting Zone (Appendix E). The selected grasses, sedges, rushes, ferns and wildflowers for the community can be found in Tables 10 and 11. Species were chosen to provide improved wildlife habitat and ground cover.

Native seed application rates are based on applying 180-210 seeds per square foot. The quantity of seed required per acre (Table 10) is based on purchasing “Pure Live Seed (PLS)”. These rates shall be utilized in the Re-work Zones while ½ those rates shall be utilized in the Enhancement Zone due to the presence of a well-established native community. Seed requirements shall be the same as those provided in the Northern Sedge Meadow and Shrub-Carr discussions above. The native seed along with a cover crop shall be dormant sown between October 15<sup>th</sup> and November 30<sup>th</sup>, 2015. If the community is hand sown, the seed shall be mixed with a carrier (e.g., sawdust, vermiculite, moist sand, etc.) to ensure even seed distribution. If a hand operated Truax seed slinger is utilized then a carrier is not required. The seeded areas shall then be rolled with a cultipacker to ensure good seed to soil contact if the soils are not saturated. Otherwise, the seed shall be installed with a broadcast type seeder (Brillion) capable of properly handling and distributing the small and fluffy native seeds. As mentioned above, the soil shall be lightly worked to a depth of ¼” – ½” in depth with a disc and/or harrow prior to seeding. If the soil is too light and fluffy, the area shall be cultipacked to provide a firmer seedbed prior to seeding.

In addition to seeding, live plants (Table 11) shall be installed either between October 15 and November 30, 2015 when they are dormant or in late May or early June 2016 in a manner similar to those installed in the Northern Sedge Meadow and Shrub-Carr communities. The exact planting locations will be established in the field based on current site conditions; and, most plants will be concentrated within the existing

groves of trees. Plant stock shall be wild ecotype indigenous to Wisconsin or have natural origins within a 250 mile radius of the planting site.

**Table 10. Wet-Mesic Forest Herbaceous Species and Seeding Rate.**

Species		Ounces Required
Common Name	Scientific Name	Per Acre
<i>Forbs</i>		
Canada Anemone	<i>Anemone canadensis</i>	1.8
Tall Thimbleweed	<i>Anemone virginiana</i>	1.0
Columbine	<i>Aquilegia canadensis</i>	2.9
Calico Aster	<i>Aster lateriflorus</i>	1.0
Large-leaved Aster	<i>Aster macrophyllus</i>	0.7
Common Beggar's Ticks	<i>Bidens frondosa</i>	2.9
Smallspike False Nettle	<i>Boehmeria cylindrica</i>	0.4
Wild Cucumber	<i>Echinocystis lobata</i>	3.6
White Snakeroot	<i>Eupatorium rugosum</i>	0.7
Northern Bedstraw	<i>Galium boreale</i>	1.0
Bottle Gentain	<i>Gentiana andrewsii</i>	0.5
Wild Geranium	<i>Geranium maculatum</i>	1.5
Yellow Avens	<i>Geum aleppicum</i>	7.3
Grass-leaved Goldenrod	<i>Euthamia graminifolia</i>	0.5
Saw-tooth Sunflower	<i>Helianthus grosseserratus</i>	1.9
Pale-leaved Sunflower	<i>Helianthus strumosus</i>	3.5
Spotted Touch-me-not	<i>Impatiens capensis</i>	0.9
Cardinal Flower	<i>Lobelia cardinalis</i>	0.9
Water Horehound	<i>Lycopus americanus</i>	1.7
Solomon's Plume	<i>Maianthemum racemosum</i>	4.6
Wild Mint	<i>Mentha arvensis</i>	0.5
Bishop's Cap	<i>Mitella diphylla</i>	0.4
Sweet Cicely	<i>Osmorhiza claytonii</i>	2.9
Wood Betony	<i>Pedicularis canadensis</i>	0.8
Jacob's Ladder	<i>Polemonium reptans</i>	1.0
Common Mountain Mint	<i>Pycnanthemum virginianum</i>	1.0
Wild Golden Glow	<i>Rudbeckia laciniata</i>	3.9
Mad-dog Skullcap	<i>Scutellaria lateriflora</i>	2.2
Late Goldenrod	<i>Solidago gigantea</i>	0.7
Purple Meadow Rue	<i>Thalictrum dasycarpum</i>	6.6
Culver's Root	<i>Veronicastrum virginicum</i>	0.9
Golden Alexanders	<i>Zizia aurea</i>	11.6
<i>Grasses/Sedges/Rushes</i>		
Fringed Brome	<i>Bromus ciliatus</i>	21.8
Canada Bluejoint	<i>Calamagrostis canadensis</i>	1.3
Bebb's Oval Sedge	<i>Carex bebbi</i>	4.3
Common Wood Sedge	<i>Carex blanda</i>	1.5
Plains Oval Sedge	<i>Carex brevior</i>	6.3
Fringed Sedge	<i>Carex crinita</i>	4.7
Crested Oval Sedge	<i>Carex cristatella</i>	2.7
Wood Gray Sedge	<i>Carex grisea</i>	3.0
Slender Sedge	<i>Carex leptalea</i>	1.1
Field Oval Sedge	<i>Carex molesta</i>	7.1
Long-beaked Sedge	<i>Carex sprengei</i>	2.2

**Table 10. Continued.**

Awl-fruited Sedge	<i>Carex stipata</i>	4.6
Narrow-leaved Oval Sedge	<i>Carex tenera</i>	1.0
Brown Fox Sedge	<i>Carex vulpinoidea</i>	4.5
Canada Wild Rye	<i>Elymus canadensis</i>	51.4
Virginia Wild Rye	<i>Elymus virginicus</i>	53.0
Fowl Manna Grass	<i>Glyceria striata</i>	3.0
Dudley's Rush	<i>Juncus dudleyi</i>	0.1
Path Rush	<i>Juncus tenuis</i>	0.3
Leafy Satin Grass	<i>Muhlenbergia mexicana</i>	2.1
Upland Wild Timothy	<i>Muhlenbergia racemosa</i>	2.3
Fowl Bluegrass	<i>Poa palustris</i>	1.4
<b>TOTAL</b>		<b>251.5</b>

**Table 11. Wet-Mesic Forest Live Plant Species, Quantities and Sizes.**

<i>Species</i>			
Common Name	Scientific Name	Quantity	Minimum Pot Size
<i>Ferns</i>			
Lady Fern	<i>Athyrium felix-femina</i>	50	4.5"
Cinnamon Fern	<i>Osmunda cinnamomea</i>	100	4.5"
Interrupted Fern	<i>Osumuda claytoniana</i>	100	4.5"
Royal Fern	<i>Osnumda regalis</i>	50	4.5"
<i>Forbs</i>			
Wild Sarsaparilla	<i>Aralia nudicaulis</i>	50	4.5"
Wild Strawberry	<i>Fragaria virginiana</i>	150	2.5"
Starry False Solomon's Seal	<i>Maianthemum stellatum</i>	150	2.5"
Woodland Phlox	<i>Phlox divaricata</i>	150	2.5"
Barren Strawberry	<i>Waldsteinia fragarioides</i>	50	2.5"
<b>TOTAL</b>		<b>850</b>	

The installation of trees and shrubs in the form of potted and bare-root materials (Table 12) will provide the foundation for establishing the overall community. The larger potted material will help establish the community more quickly while the bare-root plants provide additional species diversity and cost savings. The selected tree and shrub species will eventually provide additional cover, nesting and foraging opportunities for the surrounding wildlife.

Tree and shrub stock shall be wild ecotype indigenous to the Upper Midwest and shall have been grown within the same hardiness zone as the Project Site or acclimated to conditions of same hardiness zone for a minimum of two growing seasons. Material shall conform to the species and sizes contained within Table 12 and shall be dormant planted between October 15 and November 30, 2015 throughout the Wet-Mesic Forest Planting Zone (Appendix E). Suitable locations within the community shall be chosen based up current site conditions. The trees shall be randomly scattered planted on  $\geq 10'$  centers while shrubs shall be randomly scattered planted in clumps of 3-5 individuals on no less than 5' centers. Trees and shrubs shall be protected with shelters; however, due to their shape and size, multi-stemmed shrubs may not be tubed. The trees and shrubs shall be installed as discussed in the Shrub-Carr section above.

**Table 12. Wet Mesic Forest Woody Species, Quantities and Sizes.**

<i>Species</i>			
Common Name	Scientific Name	Quantity	Size - Height
<i>Trees</i>			
Balsam Fir	<i>Abies balsamea</i>	25	#5-7 gallon
Red Maple	<i>Acer rubrum</i>	25	2-4' bare-root
Silver Maple	<i>Acer saccharinum</i>	75	2-4' bare-root
Yellow Birch	<i>Betula alleghaniensis</i>	50	2-4' bare-root
Musclewood	<i>Carpinus caroliniana</i>	25	2-4' bare-root
Northern Hackberry	<i>Celtis occidentalis</i>	15	2-4' bare-root
Black Ash	<i>Fraxinus nigra</i>	5	#5-7 gallon
Tamarack	<i>Larix laricina</i>	25	#5-7 gallon
Black Spruce	<i>Picea mariana</i>	25	#5-7 gallon
Swamp White Oak	<i>Quercus bicolor</i>	100	2-4' bare-root
Bur Oak	<i>Quercus macrocarpa</i>	50	2-4' bare-root
Peach-leaf Willow	<i>Salix amygdaloides</i>	50	#2-5 gallon
Black Willow	<i>Salix nigra</i>	75	2-4' bare-root
White-cedar	<i>Thuja occidentalis</i>	25	#5-7 gallon
Canadian Hemlock	<i>Tsuga canadensis</i>	10	#5-7 gallon
Slippery Elm	<i>Ulmus rubra</i>	20	#2-5 gallon
<i>Shrubs</i>			
Black Chokeberry	<i>Aronia melanocarpa</i>	25	#2-5 gallon
Swamp Birch	<i>Betula pumila</i>	15	#2-5 gallon
Buttonbush	<i>Cephalanthus occidentalis</i>	10	2-4' bare-root
Alternate-leaved Dogwood	<i>Cornus alternifolia</i>	15	#5 gallon
Silky Dogwood	<i>Cornus amomum</i>	50	2-4' bare-root
Red-osier Dogwood	<i>Cornus stolonifera</i>	25	2-4' bare-root
Bush Honeysuckle	<i>Diervilla lonicera</i>	25	#1-2 gallon
Winterberry (Male & Female)	<i>Ilex verticillata</i>	10	2-4' bare-root
Fly Honeysuckle	<i>Lonicera canadensis</i>	15	#1-2 gallon
Common Ninebark	<i>Physocarpus opulifolius</i>	35	2-4' bare-root
Black Currant	<i>Ribes americanum</i>	25	#1-2 gallon
Wild Rose	<i>Rosa blanda</i>	20	#1-2 gallon
American Elder	<i>Sambucus canadensis</i>	35	2-4' bare-root
Meadow-sweet	<i>Spiraea alba</i>	10	#2-5 gallon
Lowbush Blueberry	<i>Vaccinium angustifolium</i>	15	#1-2 gallon
Nannyberry	<i>Viburnum lentago</i>	35	2-4' bare-root
American Highbush Cranberry	<i>Viburnum opulus L. subsp. trilobum</i>	35	2-4' bare-root
<b>TOTAL</b>		<b>1,000</b>	

### Habitat Structure Installation

Due to a lack of nesting and roosting opportunities within the community, bird and bat houses will be added to the Wet-Mesic Forest Planting Zone. A rock pile will also be added to provide additional cover, habitat and feeding opportunities for a variety of aquatic insects, amphibians, reptiles, mammals and birds. The addition of bird houses will benefit cavity nesting and dwelling species, in particular eastern screech-owl (*Otus asio*) and gray squirrel (*Sciurus carolinensis*). The bat house may provide roosting for several species, but little and big brown bats are expected to be the most common.

A formal wetland delineation was not conducted and our ecologists reviewed the site outside the growing season; therefore, the need for permits is unknown. The structures will not be placed in a navigable water

of the state, but wetland could be impacted. Restoration activities must adhere to Wisconsin Administrative Codes NR 103, NR 323, and NR 353. Prior to work beginning on-site, it will be necessary to obtain permit coverage. General Permits include Wetland Conservation Activities and Habitat Structure – Wildlife Nesting Structure. Rock piles are not currently covered under a general permit; therefore, a Wetland Individual Permit may be required for placement of this structure.

### Rock Pile

A rock pile shall be constructed in the approximate location shown in Appendix E. Rounded field stone ranging in size from 6-36" shall be placed in a manner that creates an interlocking, stable mound. The dimensions of the piles shall be roughly five feet wide by 2 ½ feet high (Appendix F –Rock Pile Detail). Provided site conditions are suitable, rocks can be brought in and placed by equipment. Installation can be done during the summer of 2015.

### Bird and Bat Houses

Although gray squirrels and eastern screech owls are relatively common throughout the area, the existing site lacks suitable nesting or denning habitat for either species. Both species are well adapted to utilizing nest boxes; therefore, installation of these structures is a simple, cost-effective means to increase wildlife use within the restoration site. A total of two nesting box, which could be utilized by either species shall be placed within the Wet-Mesic Forest Planting Zone (Appendix E). Little and big brown bats are also relatively common, but the recent discovery of White-nose Syndrome in the state has resulted in a need to assist bat species in any manner possible. Four bat houses will provide accessible daytime roosting, which may reduce stress and increase their health. Instructions for constructing the nesting and roosting boxes can be found in Appendix F or they may be purchased. Once constructed or purchased, the following instructions shall be followed for placement and installation:

#### Bats

Houses shall be placed so they are:

- 1) 12-20 feet above the ground on a pole with predator guard
- 2) facing East or South
- 3) receiving a minimum of 6-8 hours of sun exposure per day
- 4) protected from the wind
- 5) >25 feet from a potential predator perch such as tree limbs
- 6) not near bright lights such as street, security or porch lighting

Houses shall be painted black.

Purchased houses shall be installed per manufacturer's instructions or those found at <http://www.batcon.org/pdfs/bathouses/InstallingYourBatHousebuilding.pdf>.

Constructed and purchased houses not placed on buildings shall be secured to a Schedule 40 Galvanized Steel Pole with an inside diameter of  $\geq 2"$ . The pole shall be  $\geq 16'$  in length. Pole installation can also be found at the above web address. Two houses shall be placed back-to-back on each pole (4 total); therefore, a double mounting bracket shall be utilized. Brackets can be purchased from Lone Star Woodcraft.

#### Eastern Screech Owl & Gray Squirrel

- 1) To prevent squirrel occupation, one of the two houses shall be placed  $\geq 15'$  from any jumping point including tree trunks and overhanging branches.
- 2) 2-3" of wood chips shall be placed in the box
- 3) Nesting box shall be placed at least 10 feet above the ground on a Schedule 40 Galvanized Steel Pole with an inside diameter of  $> 2"$ . The pole shall be  $\geq 13'$  in length.

A standard mounting bracket such as the one sold by Lone Star Woodcraft or equal may be utilized; however, the bracket shall be made flush with the box edges when complete. Otherwise, instructions found at the following website shall be followed: <http://www.batcon.org/pdfs/bathouses/InstallingYourBatHouseWoodenPostSteel%20Pole.pdf>. Although the instructions are for the installation of a bat house, the procedure for installing a house on a steel pole can be applied. The steps for installing the steel pole can also be found here.

Although nesting season will have begun and bats will be utilizing familiar roosting sites, the nesting and roosting boxes shall be installed in early June. Their presence in 2015 will expose potential future occupants to their presence.

### **Mesic to Wet-Mesic Prairie**

The proposed community (Appendix E) exists in an opening among the surrounding trees that appears to receive adequate sunlight to support prairie species. Based on our site review, the area appears to contain a mix of native and non-native species. Although prairie doesn't appear to be a historic community found within the project area, the sunny and sandy location should support many plant species associated with prairies. The added plant diversity will provide additional cover and feeding opportunities. Native vegetation establishment will be the main restoration component within this community; however, the installation of rock and brush piles along with nesting structures (bird houses) will help increase habitat diversity by providing cover, feeding, and nesting opportunities for a variety of invertebrate, amphibian, reptile, mammal and bird species.

The existing trail discussed above in the Shrub-Carr and Wet-Mesic Forest sections passes through a portion of this community also. As with the other two communities, signs and fencing shall be erected in an effort to educate and protect

### **Site Preparation**

Although some native species may be present, the Mesic to Wet-Mesic Prairie is being considered a Re-work Zone; therefore, the site shall be treated with herbicide 2-3 times during the 2015 growing season. A combination of chemicals discussed above shall be utilized per the labels to adequately control existing vegetation.

Following the last herbicide application and prior to sowing the native seed, the soil shall be lightly worked to a depth of ¼" – ½" in depth with a disc and/or harrow. An NR 216 Construction Site Storm Water Discharge Permit shall be secured from the WDNR prior to earth disturbing activities.

### **Vegetation Establishment**

To assist with re-vegetation, seeding activities shall occur throughout the Mesic to Wet-Mesic Prairie Planting Zone (Appendix E). The selected grasses, sedges and wildflowers for the community can be found in Table 13. Species were chosen to provide an aesthetically pleasing community in an urban setting, while providing wildlife habitat and ground cover.

Native seed application rates are based on applying 60-100 seed per square foot. The quantity of seed required per acre (Table 13) is based on purchasing "Pure Live Seed (PLS)". Seed requirements shall be the same as those provided in the community discussions above. The native seed along with a cover crop shall be dormant sown between October 15<sup>th</sup> and November 30<sup>th</sup>, 2015. If the community is hand sown, the seed shall be mixed with a carrier (e.g., sawdust, vermiculite, moist sand, etc.) to ensure even seed

distribution. If a hand operated Truax seed slinger is utilized then a carrier is not required. The seeded areas shall then be rolled with a cultipacker to ensure good seed to soil contact if the soils are not saturated. Otherwise, the seed shall be installed with a broadcast type seeder (Brillion) capable of properly handling and distributing the small and fluffy native seeds. As mentioned above, the soil shall be lightly worked to a depth of ¼” – ½” in depth with a disc and/or harrow prior to seeding. If the soil is too light and fluffy, the area shall be cultipacked to provide a firmer seedbed prior to seeding.

**Table 13. Mesic to Wet-Mesic Prairie Species and Seeding Rate.**

Species		Ounces Required
Common Name	Scientific Name	Per Acre
<i>Forbs</i>		
Nodding Onion	<i>Allium cernuum</i>	4.1
Columbine	<i>Aquilegia canadensis</i>	0.8
Common Milkweed	<i>Asclepias syriaca</i>	1.2
Butterfly Weed	<i>Asclepias tuberosa</i>	0.9
Smooth Blue Aster	<i>Aster laevis</i>	1.0
Calico Aster	<i>Aster lateriflorus</i>	0.3
New England Aster	<i>Aster novae-angliae</i>	1.0
Purple Prairie Clover	<i>Dalea purpurea</i>	8.4
Showy Tick Trefoil	<i>Desmodium canadense</i>	0.9
Shooting Star	<i>Dodecatheon meadia</i>	0.8
Pale Purple Coneflower	<i>Echinacea pallida</i>	9.0
Ox-eye	<i>Heliopsis helianthoides</i>	6.2
Round-headed Bushclover	<i>Lespedeza capitata</i>	6.9
Rough Blazingstar	<i>Liatris aspera</i>	4.9
Pale Spiked Lobelia	<i>Lobelia spicata</i>	0.2
Wild Bergamot	<i>Monarda fistulosa</i>	1.8
Common Mountain Mint	<i>Pycnanthemum virginianum</i>	0.4
Yellow Coneflower	<i>Ratibida pinnata</i>	2.6
Black-eyed Susan	<i>Rudbeckia hirta</i>	0.9
Brown-eyed Susan	<i>Rudbeckia triloba</i>	2.8
Compass Plant	<i>Silphium laciniatum</i>	1.2
Prairie Dock	<i>Silphium terebinthinaceum</i>	1.6
Showy Goldenrod	<i>Solidago speciosa</i>	0.6
Common Spiderwort	<i>Tradescantia ohioensis</i>	7.8
Culver's Root	<i>Veronicastrum virginicum</i>	0.1
Golden Alexander	<i>Zizia aurea</i>	7.1
<i>Grasses/Sedges</i>		
Big Bluestem	<i>Andropogon gerardii</i>	7.8
Side Oats Grama	<i>Bouteloua curtipendula</i>	65.3
Sand Bracted Sedge	<i>Carex muehlenbergii</i>	6.5
Canada Wild Rye	<i>Elymus canadensis</i>	60.3
Switch Grass	<i>Panicum virgatum</i>	5.6
Little Bluestem	<i>Schizachyrium scoparium</i>	26.1
Indian Grass	<i>Sorghastrum nutans</i>	19.6
<b>TOTAL</b>		<b>264.7</b>

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## Habitat Structure Installation

Due to a lack of nesting opportunities within the community, bird houses will be added to the Mesic to Wet-Mesic Prairie Planting Zone. Rock and brush piles will also be added to provide additional cover, habitat and feeding opportunities for a variety of aquatic insects, amphibians, reptiles, mammals and birds. The addition of bird houses will benefit cavity nesting.

A formal wetland delineation was not conducted and our ecologists reviewed the site outside the growing season; however, the area does not appear to be wetland. Therefore, the structures will not be placed in a navigable water of the state or a wetland. Restoration activities must still adhere to Wisconsin Administrative Codes NR 103, NR 323, and NR 353 so the WDNR shall be consulted prior to work beginning on-site.

### **Rock Pile**

A rock pile shall be constructed in the approximate location shown in Appendix E. Construction shall be similar to the pile installed in the Wet-Mesic Forest Planting Zone.

### **Brush Pile**

A brush pile shall be constructed in the approximate location shown in Appendix E. Construction shall be similar to the pile installed in the Northern Sedge Meadow Planting Zone.

### **Bird Houses**

Two nesting structures, one tree swallow and one wood duck box shall be erected in the approximate locations shown in Appendix E. Construction and installation shall be similar to those specified in the Northern Sedge Meadow Planting Zone.

### ***Prairie***

The proposed community exists along the south slope of the restoration site (Appendix E). Much of the area has been disturbed during the dredging operation. In the spring of 2015, slopes within the area will be re-graded, topsoil applied and the area seeded with a cover crop of oats. Part of the site preparation by the dredging contractor will also include the removal of the existing trees, which include cottonwood and box elder. The tree tops will be available for use to construct brush piles throughout the site (Appendix E). Removal of the large trees will allow more light to the slope. Although prairie doesn't appear to be a historic community found within the project area, the sunny and sandy location should support many plant species associated with prairies. The added plant diversity will provide additional cover and feeding opportunities. Native vegetation establishment will be the main restoration component within this community; however, the installation of nesting structures (bird houses) will help increase habitat diversity by providing nesting opportunities for bird species.

### Site Preparation

The Prairie is being considered a Re-work Zone since it will be re-graded and planted with a cover crop in 2015; therefore, the site shall be treated with herbicide 2-3 times during the 2015 growing season. A combination of chemicals discussed in the above sections shall be utilized per the labels to adequately control existing vegetation.

Following the last herbicide application and prior to sowing the native seed, the soil shall be lightly worked to a depth of ¼” – ½” in depth with a disc and/or harrow.

An NR 216 Construction Site Storm Water Discharge Permit shall be secured from the WDNR prior to earth disturbing activities.

### Vegetation Establishment

To assist with re-vegetation, seeding activities shall occur throughout the Prairie Planting Zone (Appendix E). The selected grasses, sedges and wildflowers for the community can be found in Table 14. Species were chosen to provide an aesthetically pleasing community in an urban setting, while providing wildlife habitat and ground cover. The majority of the species chosen are also less than four feet in height to reduce visual obstructions of the harbor from the adjacent walking trail.

Native seed application rates are based on applying 60-100 seed per square foot. The quantity of seed required per acre (Table 14) is based on purchasing “Pure Live Seed (PLS)”. Seed requirements shall be the same as those provided in the community discussions above. The native seed along with a cover crop shall be dormant sown between October 15<sup>th</sup> and November 30<sup>th</sup>, 2015. If the community is hand sown, the seed shall be mixed with a carrier (e.g., sawdust, vermiculite, moist sand, etc.) to ensure even seed distribution. If a hand operated Truax seed slinger is utilized then a carrier is not required. The seeded areas shall then be rolled with a cultipacker to ensure good seed to soil contact if the soils are not saturated. Otherwise, the seed shall be installed with a broadcast type seeder (Brillion) capable of properly handling and distributing the small and fluffy native seeds. As mentioned above, the soil shall be lightly worked to a depth of ¼” – ½” in depth with a disc and/or harrow prior to seeding. If the soil is too light and fluffy, the area shall be cultipacked to provide a firmer seedbed prior to seeding. Upon completing the seeding, Class I, Urban, Type A erosion blanket shall be installed.

**Table 14. Prairie Species and Seeding Rate.**

Species		Ounces Required
Common Name	Scientific Name	Per Acre
<i>Forbs</i>		
Nodding Onion	<i>Allium cernuum</i>	2.1
Prairie Onion	<i>Allium stellatum</i>	2.1
Leadplant	<i>Amorpha canescens</i>	2.0
Thimbleweed	<i>Anemone cylindrica</i>	0.6
Northern Thimbleweed	<i>Anemone virginiana</i>	0.6
Columbine	<i>Aquilegia canadensis</i>	0.8
Butterfly Weed	<i>Asclepias tuberosa</i>	0.9
Whorled Milkweed	<i>Asclepias verticillata</i>	1.4
Heath Aster	<i>Aster ericoides</i>	0.2
Smooth Blue Aster	<i>Aster laevis</i>	1.1
Sky Blue Aster	<i>Aster oolentangiense</i>	0.6
Lance-leaf Coreopsis	<i>Coreopsis lanceolata</i>	1.2
Purple Prairie Clover	<i>Dalea purpurea</i>	3.1
Shooting Star	<i>Dodecatheon meadia</i>	0.5
Pale Purple Coneflower	<i>Echinacea pallida</i>	4.5
Flowering Spurge	<i>Euphorbia corollata</i>	0.8
Sweet Everlasting	<i>Gnaphalium obtusifolium</i>	0.1
Prairie Alumroot	<i>Heuchera richardsonii</i>	0.1
Round-headed Bushclover	<i>Lespedeza capitata</i>	2.9
Rough Blazingstar	<i>Liatris aspera</i>	2.5
Dwarf Blazing Star	<i>Liatris cylindracea</i>	1.7
Wild Lupine	<i>Lupinus perennis</i>	3.6
Wild Bergamot	<i>Monarda fistulosa</i>	1.3
Spotted Bee Balm	<i>Monarda punctata</i>	0.9

**Table 14. Continued.**

Wild Quinine	<i>Parthenium integrifolium</i>	4.5
Foxglove Beardtongue	<i>Penstemon digitalis</i>	0.6
Hairy Beardtongue	<i>Penstemon hirsutus</i>	0.3
Prairie Cinquefoil	<i>Potentilla arguta</i>	0.4
Yellow Coneflower	<i>Ratibida pinnata</i>	2.6
Black-eyed Susan	<i>Rudbeckia hirta</i>	0.9
Brown -eyed Susan	<i>Rudbeckia triloba</i>	2.3
Prairie Blue-eyed Grass	<i>Sisyrinchium campestre</i>	1.4
Stiff Goldenrod	<i>Solidago rigida</i>	1.5
Showy Goldenrod	<i>Solidago speciosa</i>	0.8
Common Spiderwort	<i>Tradescantia ohiensis</i>	3.9
Hoary Vervain	<i>Verbena stricta</i>	3.4
Golden Alexander	<i>Zizia aurea</i>	7.1
<i>Grasses/Sedges</i>		
Side Oats Grama	<i>Bouteloua curtipendula</i>	65.3
Sand Bracted Sedge	<i>Carex muehlenbergii</i>	6.5
Purple Love Grass	<i>Eragrostis spectabilis</i>	1.4
June Grass	<i>Koeleria macrantha</i>	0.8
Little Bluestem	<i>Schizachyrium scoparium</i>	31.4
Indian Grass	<i>Sorghastrum nutans</i>	19.6
<b>TOTAL</b>		<b>190.3</b>

### Habitat Structure Installation

Due to a lack of nesting opportunities within the community, bird houses will be added to the Prairie Planting Zone. The addition of bird houses will benefit cavity nesting.

### **Bird Houses**

Two tree swallow nesting structures shall be erected in the approximate locations shown in Appendix E. Construction and installation shall be similar to those specified in the Northern Sedge Meadow Planting Zone.

## CONSTRUCTION SEQUENCING

Once permits have been issued, on-site work can begin in the late spring/early summer of 2015. Work cannot occur in the water March 1st through June 15th in order to minimize adverse impacts on fish movement, fish spawning, and egg incubation periods. Tables 14 & 15 provide an approximate timeline for completion of tasks associated with the native plantings and structure installations. The schedule needs to be flexible to accommodate for weather, scheduling conflicts, etc., but it provides a general indication of the dates for completing the proposed components.

**Table 15. Implementation Schedule - 2015.**

Task	Year 2015											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Install & Maintain Restoration Signs & Barrier Fencing						■	■	■	■	■		
Site Preparation – Invasive Species Control in all Communities						■	■	■	■	■		
Site Preparation – Herbicide Applications in Re-work Zones						■		■		■		
Debris/Litter Removal						■	■	■	■	■		
Install Carp & Goose Fencing						■	■					
Aquatic Submergent & Emergent Live Plant Installation						■	■					
Install Tern Nesting Platforms						■	■					
Erect Bird & Bat Houses						■	■					
Install Half-Log & Log Structures							■	■	■	■		
Construct Rock & Brush Piles							■	■	■	■		
Install Fish Sticks							■	■	■	■		
Disc & Harrow											■	■
Mow Enhancement Zone Vegetation											■	■
Native Seed Installation											■	■
Live Plant Installation											■	■
Install Potted & Bare-root Trees/Shrubs											■	■
Install Live Stakes											■	■

**Table 16. Implementation Schedule - 2016.**

Task	Year 2016											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Install Log Structures	■	■										
Install Fish Sticks*	■	■		■	■							
Maintenance/Repair of Restoration Signs & Barrier Fencing				■	■	■						
Maintenance/Repair Carp & Goose Fencing				■	■							
Live Plant Installation					■	■						

Activities in red may be completed over the ice if not completed in 2015.

\*Final measures to secure the structures shall be conducted when the soil is no longer frozen

## POST-CONSTRUCTION

Following completion of the ecological restoration, four years of monitoring and maintenance (2015-2018) will occur, with 2015 considered to be year zero. Monitoring will be conducted by Dr. Keith West of the University of Wisconsin-Marinette and his students with training and guidance provided by WDNR biologists. Maintenance activities, per the Chapter 30 Permit, will be conducted by either the installation contractor under a separate contract or by another restoration firm hired by the City of Marinette.

### Monitoring

#### Goals

Many of the functional values discussed in the Baseline Conditions section will improve with the proper installation and maintenance of the communities; however, in order to quantify their success, in-depth studies, requiring money and time for the community to become established, would have to be conducted. Therefore, objectives for this project's goals will revolve around vegetation establishment, invasive species control and the presence of wildlife.

There are three goals related to this project. Goal one is to enhance the plant communities that have been degraded through the invasion of species such as cattail, giant reed grass, purple loosestrife, reed canary grass, spotted knapweed and quack grass. Suppression of these invasive species along with the re-establishment of native vegetation through seeding and planting activities will improve the overall quality of the wetland complex and its buffer. A diverse native vegetation community will provide quality habitat for local wildlife populations. The second goal is to provide additional habitat structure to increase use of the site by a variety of wildlife species. Native vegetation will provide necessary cover, food and nesting; however, additional structures such as rock and brush piles, nesting boxes and woody debris will further benefit and increase wildlife species found utilizing the site. The third goal will include the preservation of the restoration site. To meet this goal, the City of Marinette intends to zone the site as P1-Park District "Conservancy District" which preserves natural areas and restricts development to only low-impact features such as nature trails and wildlife observation structures.

#### Performance Standards

The below performance standards will be used to verify the success of the restored wetland and upland communities. Some of the standards will also help determine if the wetland is providing increased functional values.

- 1) Aerial coverage of invasive, non-native species such as giant reed grass, reed canary grass, cattail spp., purple loosestrife and spotted knapweed will not be >5% absolute cover after three years.
- 2) After three years,  $\geq 85\%$  of the vegetative cover within the restoration site will be native species, <15% of the cover will be invasive, non-native species.
- 3) Ninety percent of the site will be vegetated within three years.
- 4) 600 of the 800 planted shrubs and live stakes within the Shrub-Carr community will be present and healthy three years after installation.
- 5) 750 of the 1,000 planted trees and shrubs within the Wet-Mesic Forest community will be present and healthy three years after installation.
- 6) The Open Water with Submergent Vegetation Community shall have a minimum of 5 native, non-invasive species present.
- 7) The Emergent Aquatic Community shall have a minimum of 15 native, non-invasive species present.

- 8) The Northern Sedge Meadow, Shrub-Carr, Wet-Mesic Forest and Mesic to Wet-Mesic Prairie Communities shall each have a minimum of 20 native species present.
- 9) To ensure the restored communities have natural significance, the floristic quality index (FQI) and Coefficient of Conservatism (Mean C) for each shall be  $\geq 25$  and  $\geq 4.0$ , respectively, after three years. FQI values will be calculated utilizing all species present: non-native species will be assigned a value of zero.
- 10) Six of the twelve nesting and roosting boxes shall be utilized or occupied annually by year three.
- 11) Twenty avian species, five species of reptiles and amphibians, and five mammal species will be recorded, either through direct observation, calls or sign left by the species, utilizing the site after three years.

Year zero (2015) will include conducting a meander survey in June to compile a comprehensive species list of the vegetation currently found within the different communities. The previous vegetation survey conducted by Ayres was completed in the fall of 2013. An updated survey will help establish conditions after the last herbicide application and prior to substantial work being completed on-site. In addition to the qualitative data conducted in June, quantitative data shall be collected in August by establishing permanent sample plots. Repeated sampling within these locations will provide valuable information regarding site progression.

The seven restored communities will be monitored annually over a four year period. Quantitative data will be collected in mid-August the first and third years after activities are completed. The site will be monitored by collecting data at 15 1-m<sup>2</sup> (herbaceous layer), 5-m<sup>2</sup> (shrub layer) and 10-m<sup>2</sup> (tree layer) sample plots (1-3 per community type) established randomly throughout the seven communities (Appendix E). Each plot will be marked with a wooden stake and located with a Trimble GPS (sub-meter accuracy) unit to allow for the analysis of temporal trends within the communities. Qualitative data will be collected in late May or early June each of the three years and in mid-August on the second year after restoration activity completion. These data will be collected by conducting a meander survey through each community. Both quantitative and qualitative data collected during these periods and utilized within the monitoring report will be specific and dated. Appendix G contains a Habitat Description and Botanical Survey Form that can be utilized to record data.

A photographic record of each community will also be maintained by taking pictures from the same vantage point each monitoring year. Photos shall be dated and captioned, including those used in the monitoring report.

In addition to the site visits indicated above, qualitative (e.g., invasive species and wildlife observations) data shall be collected during site visits conducted throughout the growing season (May through October) to implement maintenance activities.

Annual monitoring reports containing the below elements shall be submitted to the City of Marinette and the Wisconsin Department of Natural Resources by the end of December each year.

- 1) Identify site
- 2) Dates of site inspections
- 3) A restatement of the plan goals, objectives, and performance standards.
- 4) A description of management activities and corrective actions implemented during the past year including the identification of any structural failures or external disturbance on the site.
- 5) A site map showing the locations of data collection and fixed photo points
- 6) Site photos

- 7) A summary of and full presentation of the data collected during the past year. A narrative summary of the results and conclusions of the monitoring including an assessment of the presence and level of occurrence of invasive species. An assessment of the degree to which performance standards are being met. Proposed corrective actions to improve attainment of performance standards.

### Vegetation

At each sample plot, the plant species and percent coverage will be recorded within a 1 m<sup>2</sup> (herbaceous), 5 m<sup>2</sup> (shrubs) and 10 m<sup>2</sup> (trees) area during August in the first and third years of monitoring. Coverage will be determined using the perpendicular projection to the ground from the outline of the aerial parts of the plant species and reported as the percent of the total area (e.g., substrate or water surface) covered (Brower et al. 1990). The percent foliage coverage will help determine the success of the overall vegetation establishment on the site and it will be analyzed for each species using the Daubenmire Classification Scheme ((Mueller-Dombois and Ellenberg 1974). The Daubenmire methodology will rank each species observed according to estimated foliage cover (Table 9). By providing a range of percent foliage cover for each rank, the Daubenmire Classification Scheme will help minimize errors due to observer bias, visual estimation, etc. Frequency of occurrence and relative frequency of occurrence will also be estimated. The frequency of occurrence is defined as the number of times that a given species occurred in each community type. The relative frequency of occurrence is the frequency of that species divided by the sum of the frequencies of all species in the community (Bower et al. 1990). The rankings developed using the Daubenmire Classification Scheme and the frequency of occurrence data will be utilized to help determine whether the objectives relating to dominance by native taxa and the percent coverage of exotic species is satisfactorily achieved.

**Table 17. Daubenmire Classification Scheme Cover Ranking System.**

Percent Foliage Cover	Rank
0-5	1
5-25	2
25-50	3
50-75	4
75-95	5
95-100	6

During the June meander survey, conducted each monitoring year, the number of living planted trees and shrubs and a comprehensive list of plant species found within each community will be determined. Since there must be 75% survival rate at the end of the third year, an accurate count of the trees and shrubs will be required each year to determine if corrective actions are required. Each living woody species location will be located with a GPS and placed on a community map. Data sets within GIS will then be used to compare subsequent years to determine shrub age, which will be color coded on the aforementioned map. The plant species list accumulated during this survey will be added to an August list compiled at either the established sample points or through another meander survey conducted in the second year of monitoring. Plant species not found in the sample plots, but identified while walking between points will be added to the comprehensive list.

Once a comprehensive plant list has been accrued, the average coefficient of conservatism or Mean C and floristic quality index (FQI) (Herman et al. 1996) will be calculated for each community type within the restoration site. Each plant's coefficient of conservatism will be taken from the document "Development of A Floristic Quality Assessment Methodology for Wisconsin." The coefficient of conservatism (C) is based on a scale of 1 to 10 and is a measure of a plant's affinity or its estimated probability of occurring in a landscape relatively unaltered from what is believed to be a pre-settlement condition. A C of 0,

therefore, is assigned to plants like box elder (*Acer negundo*) that have demonstrated little fidelity to any remnant natural community (i.e., it may be found anywhere), while a C of 10 is assigned to plants like shrubby cinquefoil (*Potentilla fruticosa*) that are almost always restricted to high quality natural areas. According to the “Development of A Floristic Quality Assessment Methodology for Wisconsin,” a Mean C that ranges between 0 and 3 contains many species that are very tolerant of disturbance. An average between 4 and 6 indicates a moderately tolerant community, while anything above 7 contains many species that are not tolerant of disturbance. The FQI is calculated by averaging the sum of the coefficients of conservatism for all identified species and then by dividing the average by the square root of the total number of plants. Based upon Michigan studies (Herman et al. 1996), a FQI of less than 20 has minimal significance from a natural quality standpoint. A FQI higher than 35 suggests that an area has relatively high conservatism and richness and that they are floristically important. Habitats with a FQI higher than 50 are extremely rare and represent a significant component to native biodiversity and natural landscapes. The Mean C and floristic quality index will be used to assess the floristic quality (i.e., natural condition) of the restored communities.

All raw vegetation data collected during our surveys shall be included within the attachments of each monitoring report.

### Wildlife

Evidence of wildlife on the site will be documented when conducting data collection at the sample plots, during the meander surveys, and during maintenance activities to determine the functional value of the restored habitat. A table containing the species or sign observed along with their recorded date will be included within the annual monitoring reports.

We are hopeful that many more wildlife species will be present than the number indicated in the performance standard, but the goal needs to be realistic. The successful restoration of the wetland and upland communities will draw many wildlife species seeking food, water, and shelter. If species observations are low, specific activities such as conducting avian surveys in the early morning or setting up live animal and pit fall traps to capture mammals, reptiles and amphibians shall be undertaken. These activities will provide opportunities to observe the wildlife using the site.

## **Maintenance**

The City of Marinette or their representative shall inspect and monitor the plantings so that the suggested maintenance activities can be conducted to ensure optimum success of the site.

### ***Open Water, Emergent and Wet Meadow Communities***

The aquatic and wet meadow zones will need maintenance as they develop and even after they are established due to the threat of invasion by exotic weeds. As discussed in the Site Preparation Sections for these communities, species such as narrow-leaf cattail, reed canary grass, giant reed grass, and purple loosestrife shall be removed or treated with herbicide to prevent them from becoming established or spreading. Vegetation patches greater than 10'X10' that are treated and eliminated through herbicide applications will be replanted or reseeded with native plants or seed. Quick, early treatment of these species will save time and money down the road. Addressing invasive species will be an annual endeavor between 2016-2018 due to their ability to appear suddenly and spread quickly, but aggressive and proactive maintenance early on will limit future activities. Activities discussed above shall be utilized to treat and remove these and other invasive species.

Invasive species control within the Wild Rice planting zone will be particularly important since success of the seeding is unknown. If conditions allow, a healthy stand of rice will become well established and provide the intended community. Emergent aquatic vegetation planted in the adjacent zones will spread over time if the wild rice does not successfully grow; however, invasive species populations must be kept under control to eliminate competition.

To ensure adequate plant establishment, goose and carp fencing shall be repaired and maintained annually so it is in place and functional through the 2018 growing season. If plant establishment allows ( $\geq 90\%$  coverage) the fence may be removed early. All fencing material will be removed by November 30, 2018.

If the communities lack the number of species required in the performance standards, additional seeding or planting shall be conducted to increase diversity and plant coverage. Live plants shall be installed in June or early July while any seeding shall be conducted in mid-October to late November. These activities shall follow those guidelines provided above.

A muskrat control plan will also need to be implemented. Populations of these herbivores can grow rather quickly; and although, the emergent vegetation is there to provide food and habitat for wildlife, the overall population of these animals must be controlled. Trapping and removal activities will be a long-term maintenance activity that will not only benefit the health of the emergent vegetation, but the integrity of the community and its associated structures.

Although not necessary, nesting platforms and houses can be repaired and cleaned out in early spring prior to the arrival of migratory birds.

### ***Shrub-Carr and Wet-Mesic Forest Communities***

The woody planting zones will need maintenance as they develop and even after they are established due to the threat of invasion by exotic weeds. As discussed in the Site Preparation Sections for these communities, both aquatic and terrestrial species shall be removed or treated with herbicide to prevent them from becoming established or spreading. Vegetation patches greater than 10'X10' that are treated and eliminated through herbicide applications will be reseeded with native seed. Quick, early treatment of these species will save time and money down the road. Addressing invasive species will be an annual endeavor between 2016-2018 due to their ability to appear suddenly and spread quickly, but aggressive and proactive maintenance early on will limit future activities. Activities discussed above shall be utilized to treat and remove invasive species.

Trees and shrubs within the Shrub-Carr and Wet-Mesic Forest Planting Zones should not require much, if any, maintenance as long as the tree shelters remain in place and plants are not damaged by rabbits or deer. The site shall be regularly evaluated to determine the condition of the shelters and whether or not herbivory is affecting the development of the plantings. Corrective/protective measures including shelter replacement and repair will be taken if they are required. If monitoring indicates that certain areas do not have satisfactory tree and shrub numbers due to mortality, they will be replanted. Potted and bare-root trees and shrubs shall be installed between mid-April and mid-May or mid-October and late November. If the communities lack the number species required in the performance standards, additional seeding and planting shall be conducted to increase diversity and plant coverage. Live plants shall be installed in June or early July while any seeding shall be conducted in mid-October to late November. These activities shall follow those guidelines provided above.

To ensure adequate plant establishment and protection, restoration signs and barrier fencing shall be repaired and maintained annually so it is in place and functional through the 2018 growing season. If plant establishment allows ( $\geq 90\%$  coverage) the fence may be removed early. All fencing material will

be removed by November 30, 2018. Informational signs, however, may remain to remind recreational users of the restoration project and to prohibit unauthorized use by such things as motorized vehicles.

Although not necessary, bird houses can be repaired and cleaned out in early spring prior to the arrival of migratory birds.

### Mesic to Wet-Mesic Prairie Community

The communities planted with the prairie species mixture will likely need the most maintenance. An abundance of annual and perennial weeds invade newly planted sites no matter how much preparation work is completed prior to seeding. A combination of mowing and spot herbicide treatment will be critical in the first 3-4 years of establishment. Vegetation patches greater than 10'X10' that are treated and eliminated through herbicide applications will be reseeded with native seed. Dormant seeding shall be conducted in mid-October to late November. Once the warm and cool season grasses have become dense enough to provide a suitable litter layer, the community can be managed with prescribed burns. Fire will assist with controlling many undesirable species; however, pressure from invasive species will still warrant occasional hand removal or spot herbicide applications for optimum control. If burning is not an option, mowing may be substituted to maintain the health and vigor of the native planting. Long-term management of the prairie will include mowing or burning activities completed every 3-5 years to eliminate woody species invasion, control undesirable cool season species and rejuvenate the plant community. As discussed above in the Site Preparation Section for this community, terrestrial species shall be removed or treated with herbicide or through mowing to prevent them from becoming established or spreading.

The City of Marinette or their representative will conduct the above-mentioned maintenance as outlined in Tables 17-20. Every maintenance activity conducted during a specific year will be documented and included within the annual monitoring reports.

**Table 18. Proposed Maintenance Schedule For Year One.**

Task	Year 1											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Herbicide/Remove Invasive Species in Wetland & Upland Communities												
Mow Prairie Community												
Site Inspections												
Conduct supplemental seeding/planting, if needed												

Activity in red may not be required.

**Table 19. Proposed Maintenance Schedule For Year Two.**

Task	Year 2											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mow Prairie Community												
Herbicide/Remove Invasive Species from Wetland & Upland Communities												
Site Inspections												

Activity in red may not be required.

**Table 20. Proposed Maintenance Schedule For Year Three.**

Task	Year 3											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Herbicide/Remove Invasive Species from Wetland & Upland Communities												
Mow Upland Buffer												
Site Inspections												

Activity in red may not be required.

**Table 21. Proposed Maintenance Schedule For Years Four and Beyond.**

Task	Years 4+											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Herbicide/Remove Invasive Species from Wetland & Upland Communities												
Mow or Burn Upland Buffer*												
Site Inspections												

\*Task to be completed when appropriate during the above timeframe.

## REFERENCES

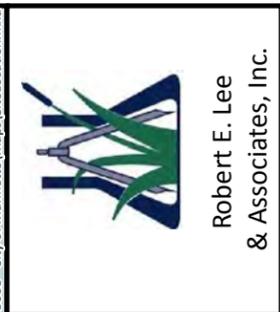
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# A

## APPENDIX A

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### Site Location Map



**Site Location**

4/20/2015

**Lower Menominee River Area of Concern  
Menominee Harbor Restoration Project  
City of Marinette-Grant/Proj. No. GL-00E01312-0  
REL Project No. 13775005  
Marinette, Marinette County, WI**

Located in parts of:  
Section 11 & 12  
T31N, R27W  
City of Marinette  
Marinette County  
Wisconsin

**Legend**

Project Area (+/- 9.09 Acres)

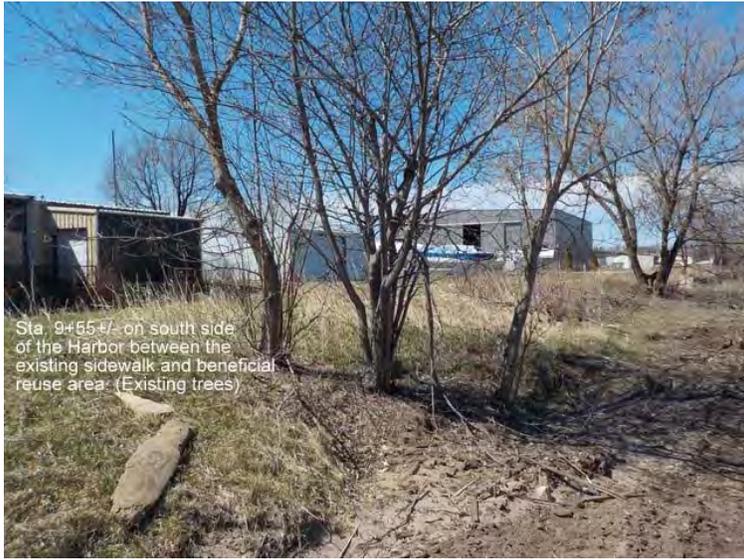
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# B

## APPENDIX B

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### Site Photographs



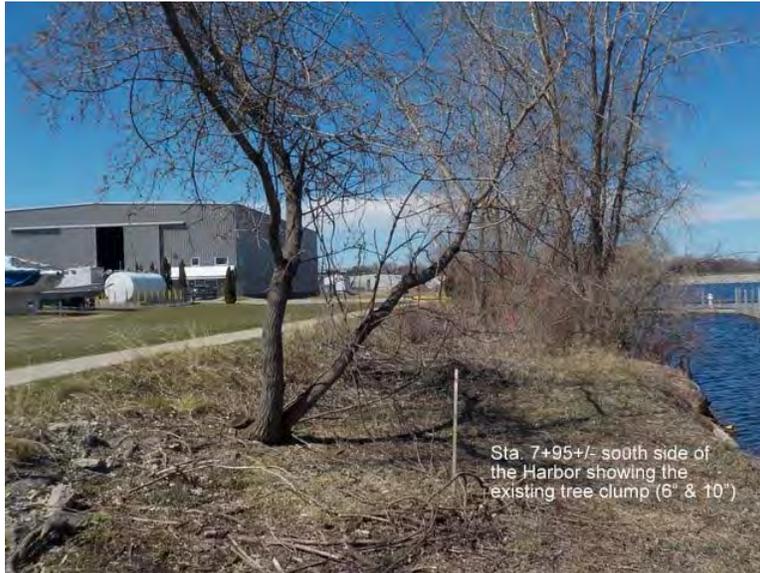
Sta. 9+65+/- on south side of the Harbor between the existing sidewalk and beneficial reuse area. (Existing trees)



Sta. 8+91 south side of the Harbor existing clump of trees (24' +/-)



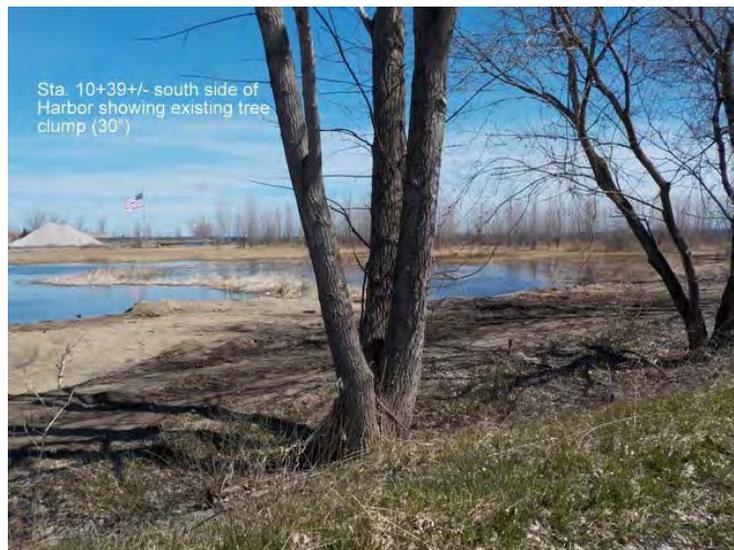
Sta. 8+22+/- south side of Harbor existing 8' +/- tree.



Sta. 7+95+/- south side of the Harbor showing the existing tree clump (6' & 10')



Sta. 7+64+/- existing bush that is the approx. start location of the proposed riprap heading easterly



Sta. 10+39+/- south side of Harbor showing existing tree clump (30')



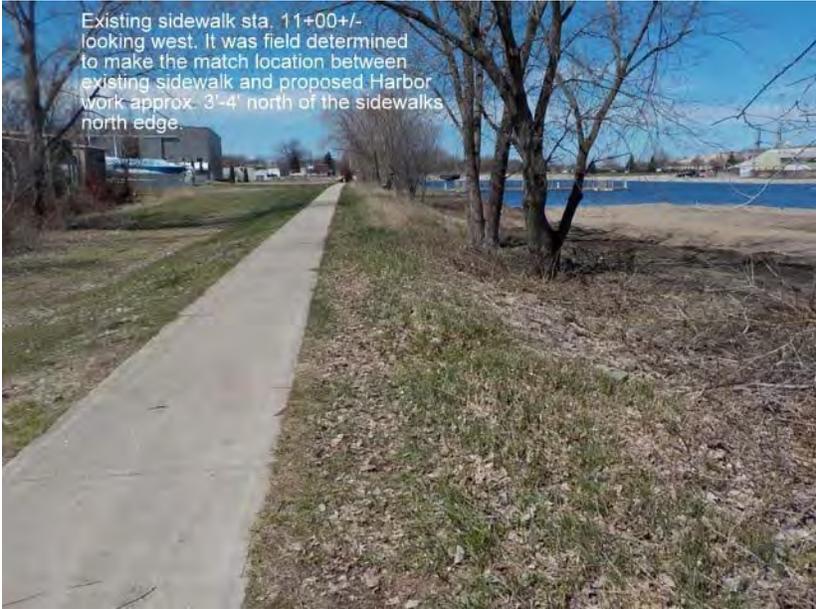
Sta. 10+63+/- south side of the Harbor showing 20'+/- existing tree clump.



Sta. 10+95+/- south side of Harbor showing the existing tree clump (48'+/-)



Sta. 11+10+/- south side of Harbor looking westerly along tree line.



# C

## APPENDIX C

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**WDNR Surface Water Data Viewer Map**

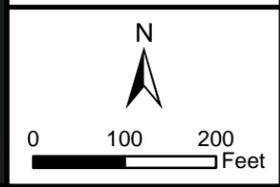


- Legend**
- Project Area (+/- 9.09 Acres)
  - Dammed pond
  - Excavated pond
  - Filled excavated pond
  - Filled/draind wetland
  - Wetland too small to delineate
  - Wetland
  - Upland
  - USDA Wetspots
  - Wetland Indicators
  - Soil Mapping Unit
  - Water
  - Intermittent Streams

**Lower Menominee River Area of Concern  
Menekaune Harbor Restoration Project  
City of Marinette-Grant/Proj. No. GL-00E01312-0  
REL Project No. 13775005  
Marinette, Marinette County, WI**

Sources: Robert E. Lee  
& Associates, Inc.,  
WDNR, ESRI

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# D

## APPENDIX D

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**Ayres Associates 2013 Plant Survey**

Table 1. Fall 2013 Plant Inventory

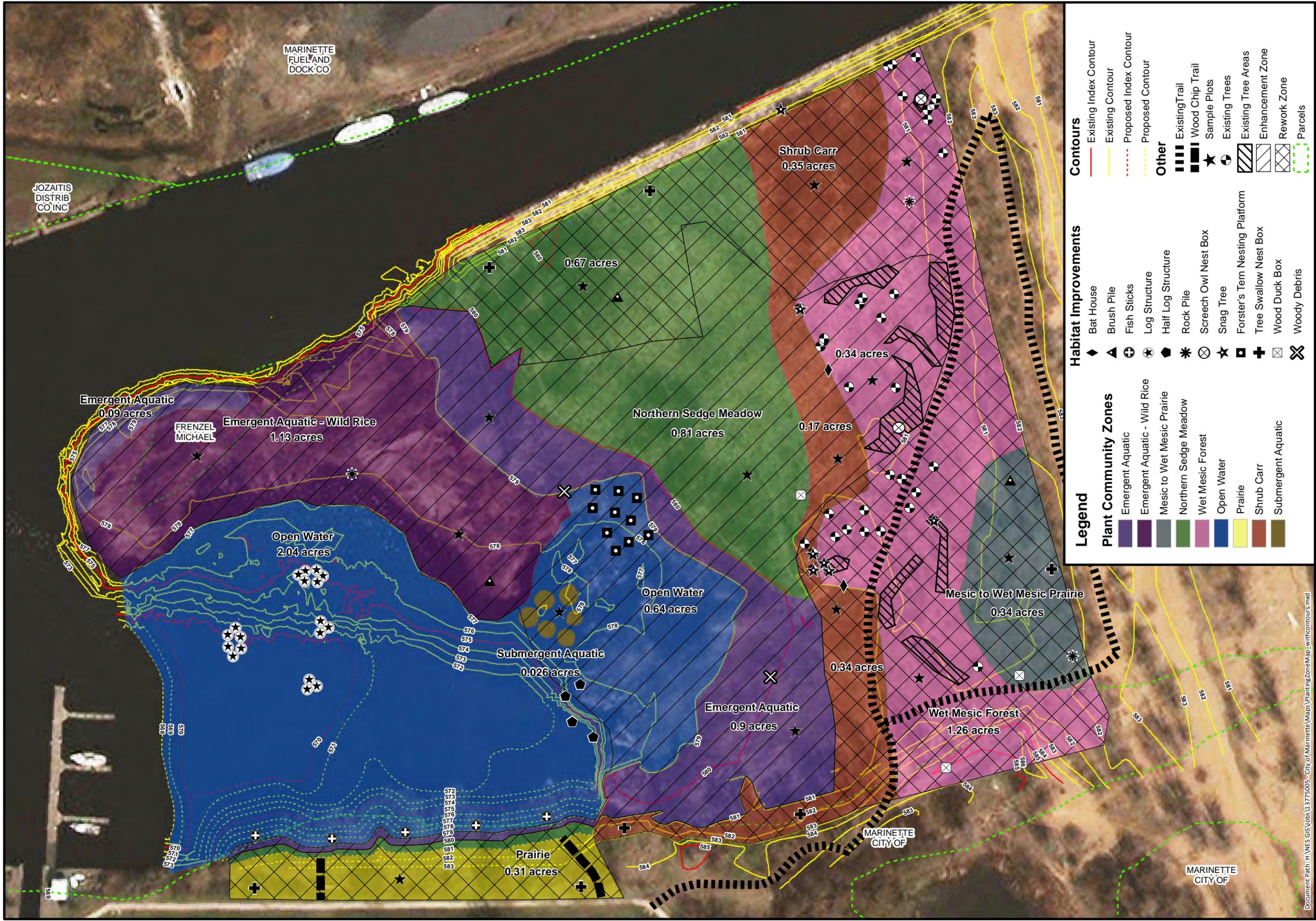
Family	Taxon	Common Name	Non-native or Invasive	Notes
Alismataceae	<i>Sagittaria latifolia</i>	Common Arrow-head	N	
Alismataceae	<i>Alisma triviale</i>	Northern Water-plantain	N	
Amaranthaceae	<i>Amaranthus tuberculatus</i>	Rough-fruited Amaranth	N	
Apiaceae	<i>Cicuta bulbifera</i>	Bulblet Water-hemlock	N	
Asteraceae	<i>Ambrosia trifida</i>	Giant Ragweed	Y	Native, but potentially invasive
Asteraceae	<i>Sonchus arvensis</i>	Field Sow-thistle	Y	Introduced - naturalized
Asteraceae	<i>Eupatorium perfoliatum</i>	Boneset	N	
Asteraceae	<i>Achillea millefolium</i>	Common Yarrow	N	
Asteraceae	<i>Bidens frondosa</i>	Common Beggar-ticks	N	
Asteraceae	<i>Centaurea biebersteinii</i>	Spotted Knapweed	Y	Introduced - naturalized; ecologically invasive
Asteraceae	<i>Lactuca biennis</i>	Tall Blue Lettuce	N	
Asteraceae	<i>Solidago canadensis</i>	Canada Goldenrod	N	
Asteraceae	<i>Solidago gigantea</i>	Giant Goldenrod	N	
Asteraceae	<i>Cirsium arvense</i>	Canada Thistle	Y	Introduced - naturalized; ecologically invasive
Asteraceae	<i>Conyza canadensis</i>	Canadian Horseweed	N	
Balsaminaceae	<i>Impatiens capensis</i>	Orange Jewelweed	N	
Campanulaceae	<i>Campanula aparinoides</i>	Marsh Bellflower	N	
Cornaceae	<i>Cornus alba</i>	Res-osier Dogwood	N	Shrubs were all dead; ID based on 2011 vegetation survey
Cyperaceae	<i>Eleocharis acicularis</i>	Needle Spike-rush	N	
Cyperaceae	<i>Carex spp.</i>	Sedge	N	
Cyperaceae	<i>Juncus effusus</i>	Soft Rush	N	
Cyperaceae	<i>Scirpus cyperinus</i>	Woolgrass	N	
Fabaceae	<i>Trifolium repens</i>	White Clover	Y	Introduced - naturalized; potentially invasive
Lamiaceae	<i>Lycopus americanus</i>	Common Water-horehound	N	
Lamiaceae	<i>Scutellaria galericulata</i>	Common Skullcap	N	
Nymphaeaceae	<i>Nymphaea odorata</i>	White Water-lily	N	
Poaceae	<i>Phragmites australis</i>	Common Reed Grass	Y	Native, but potentially invasive
Poaceae	<i>Panicum virgatum</i>	Switch Grass	N	
Poaceae	<i>Agrostis hyemalis</i>	Tickle Grass	N	
Poaceae	<i>Leersia oryzoides</i>	Rice Cut Grass	N	
Polygonaceae	<i>Rumex crispus</i>	Curly Dock	Y	Introduced - naturalized; potentially invasive
Ranunculaceae	<i>Anemone canadensis</i>	Canada Anemone	N	
Scrophulariaceae	<i>Linaria vulgaris</i>	Butter-and-eggs	Y	Introduced - naturalized; potentially invasive
Scrophulariaceae	<i>Verbascrum thapsus</i>	Common Mullein	Y	Introduced - naturalized; potentially invasive
Scrophulariaceae	<i>Mimulus ringens</i>	Monkey-flower	N	
Sparganiaceae	<i>Sparganium eurycarpum</i>	Giant Bur-reed	N	
Typhaceae	<i>Typha angustifolia</i>	Narrow-leaved Cattail	Y	Introduced - naturalized; ecologically invasive
Typhaceae	<i>Typha latifolia</i>	Broad-leaved Cattail	Y	Native, but potentially invasive
Urticaceae	<i>Pilea pumila</i>	Canada Clearweed	N	

# E

## APPENDIX E

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**Restored Plant Community Zones & Habitat Improvements**



**Legend**

<b>Plant Community Zones</b>	<b>Habitat Improvements</b>	<b>Contours</b>
Emergent Aquatic	Bat House	Existing Index Contour
Emergent Aquatic - Wild Rice	Brush Pile	Existing Contour
Mesic to Wet Mesic Prairie	Fish Sticks	Proposed Index Contour
Northern Sedge Meadow	Log Structure	Proposed Contour
Wet Mesic Forest	Half Log Structure	<b>Other</b>
Open Water	Rock Pile	Existing Trail
Prairie	Screench Owl Nest Box	Wood Chip Trail
Shrub Carr	Snag Tree	Sample Plots
Submergent Aquatic	Forster's Tern Nesting Platform	Existing Trees
	Tree Swallow Nest Box	Existing Tree Areas
	Wood Duck Box	Enhancement Zone
	Woody Debris	Rework Zone
		Parcels

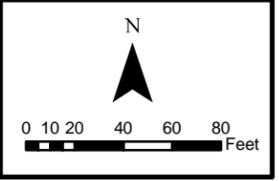


**Plant Community Zones**

5/22/2015

**Lower Menominee River Area of Concern  
Menekaunee Harbor Restoration Project  
City of Marinette-Grant/Proj. No. GL-00E01312-0  
REL Project No. 13775005  
Marinette, Marinette County, WI**

Sources: Robert E. Lee & Associates, Inc., 2010 WROC, ESRI  
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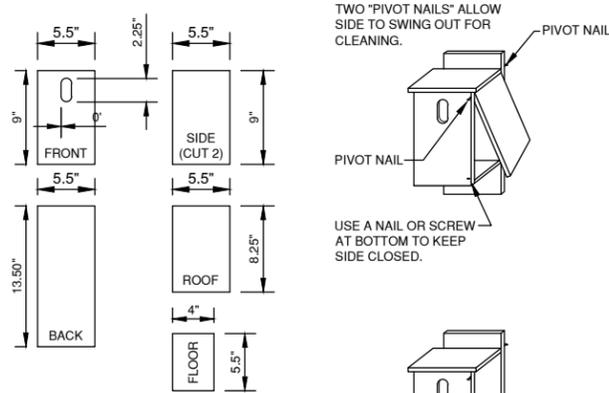
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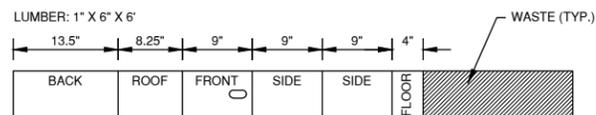
## APPENDIX F

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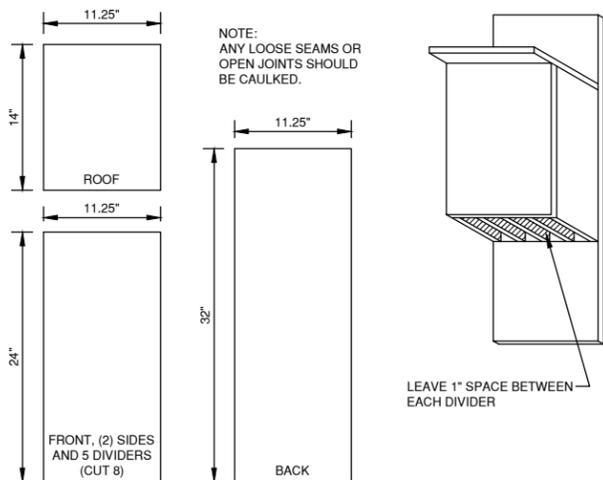
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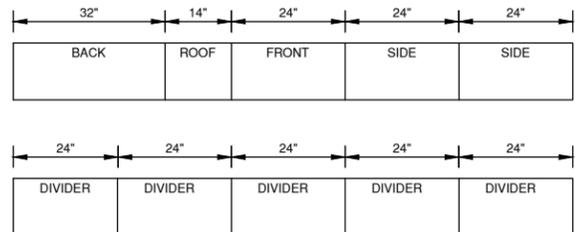
NOTE: THESE DIMENSIONS ARE FOR 3/4\"/>



**TREE SWALLOW AND EASTERN BLUEBIRD NEST BOX**



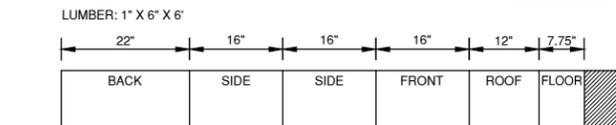
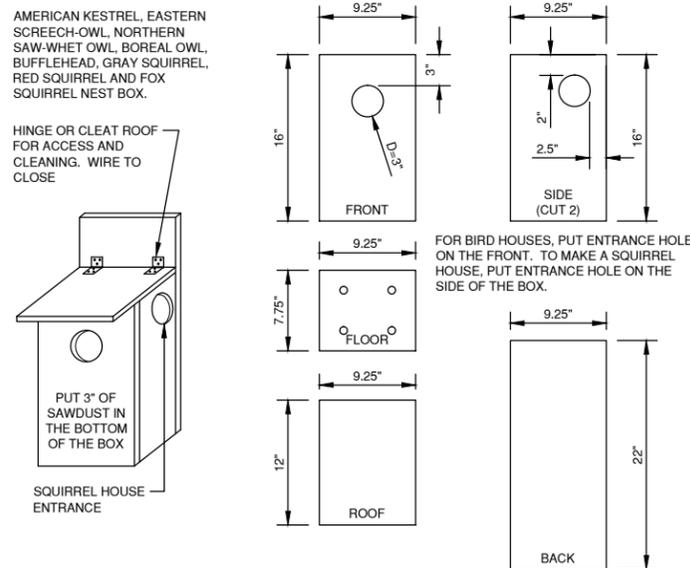
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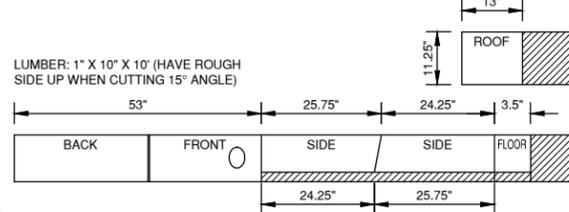
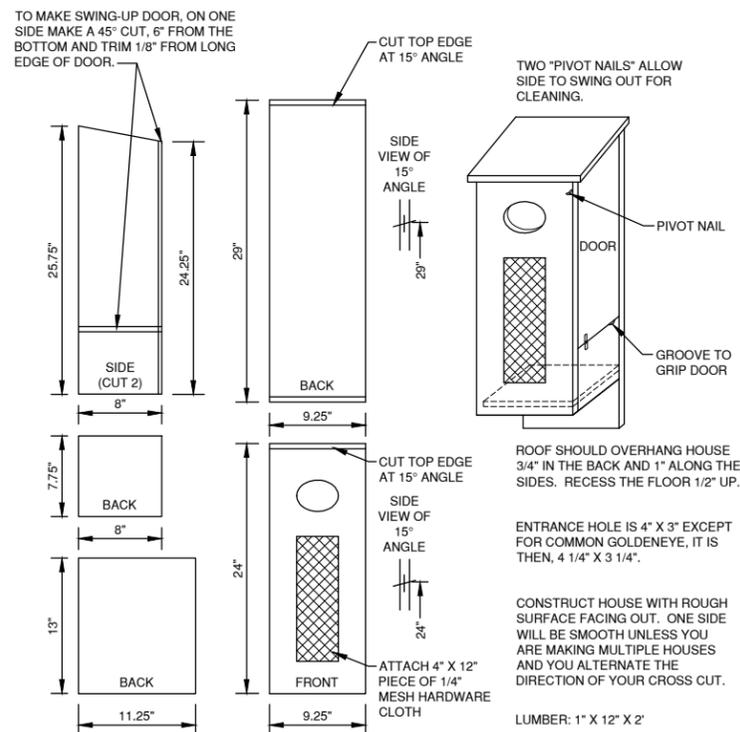
**BAT HOUSE**

NOTE: ALL NESTING/ROOSTING STRUCTURES SHALL BE CONSTRUCTED WITH CEDAR WOOD.

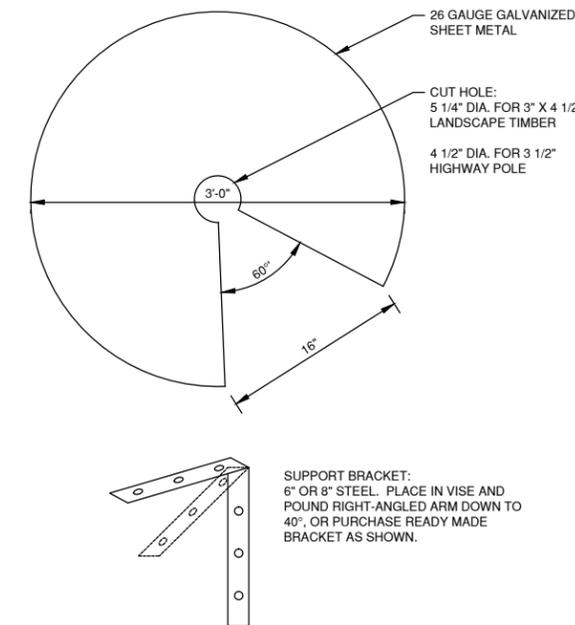
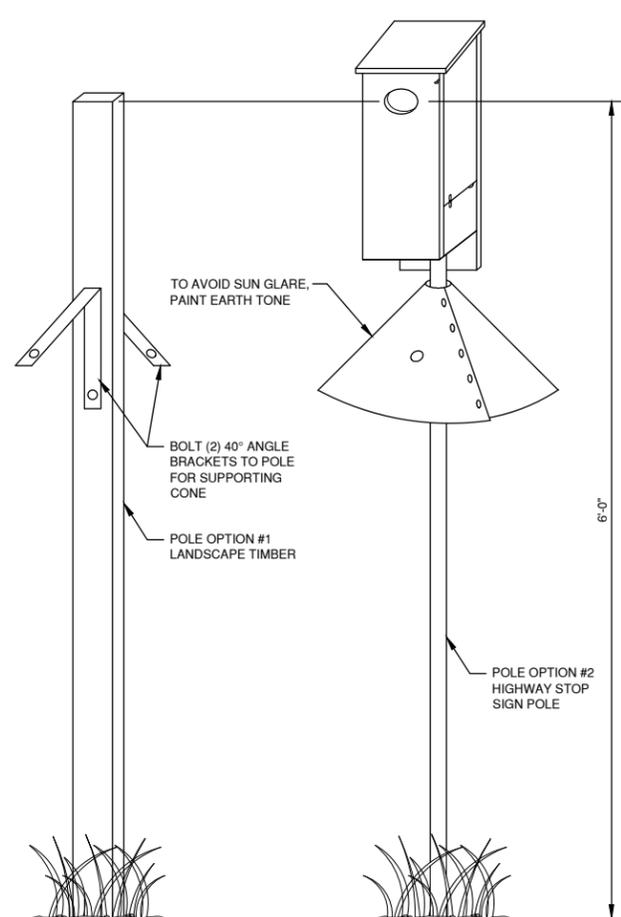
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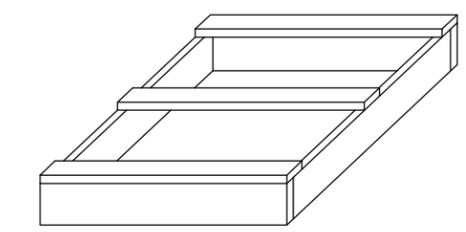
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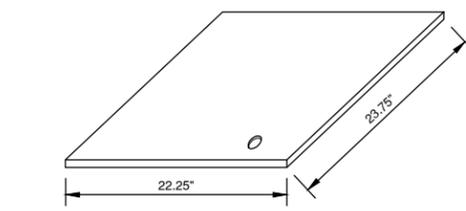
**WOOD DUCK, HOODED MERGANSER AND COMMON GOLDENEYE NEST BOX**



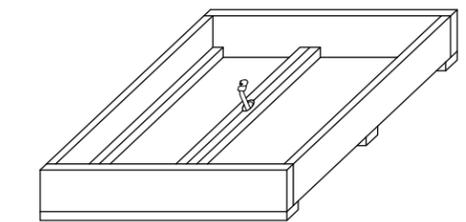
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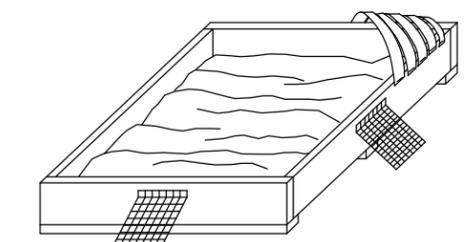
NAIL THE FOUR SIDES TOGETHER AND ATTACH THREE BOTTOM BRACES.



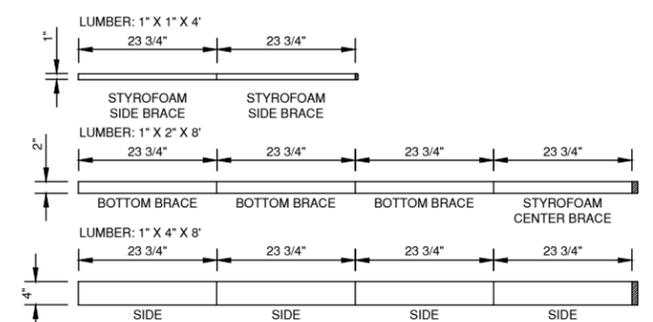
CUT A 2\"/>



NAIL THE 1\"/>



FILL PLATFORM WITH WET MARSH VEGETATION. STAPLE CATTAIL LEAVES IN AN ARCH IN THE CORNER TO MAKE A CHICK SHELTER. MAKE AND ATTACH SCREEN CHICK RAMP.



**FORSTER'S TERN NEST PLATFORM**

NO.	DATE	APPROV.	REVISION	NO.	DATE	APPROV.	REVISION

CONTRACT NO. 3775-15-01  
 MENEKAUNEE HARBOR RESTORATION PROJECT  
 CITY OF MARINETTE  
 MARINETTE COUNTY, WISCONSIN

MISCELLANEOUS DETAILS

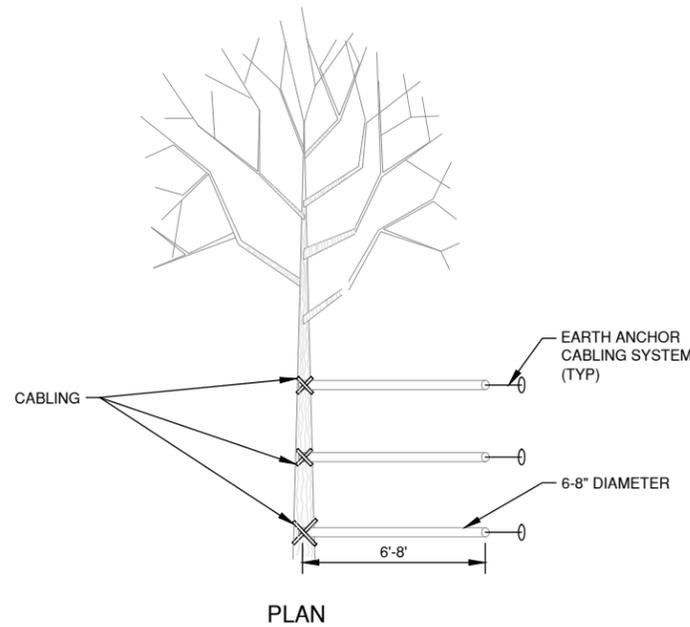
DATE: 04/2015  
 FILE: DETAILS  
 JOB NO.: 3775005

**Robert E. Lee & Associates, Inc.**  
 ENGINEERING, SURVEYING, ENVIRONMENTAL SERVICES  
 1250 CENTENNIAL CENTRE BOULEVARD  
 HOBART, WI 54155  
 INTERNET: www.releeinc.com

PHONE: (920) 662-9641  
 FAX: (920) 662-9141

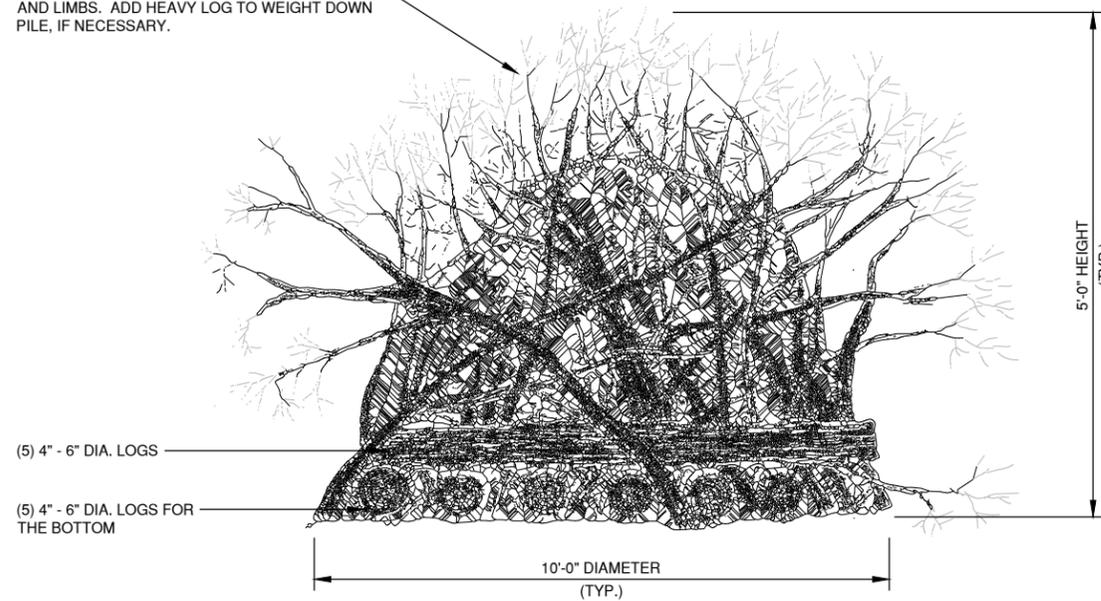
SHEET NO. 4



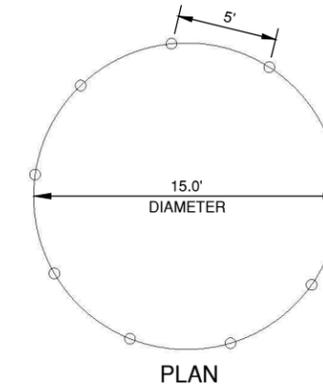


EXISTING TREE TOP ANCHORING

CONSTRUCT WITH ODD LENGTH BRANCHES AND LIMBS. ADD HEAVY LOG TO WEIGHT DOWN PILE, IF NECESSARY.



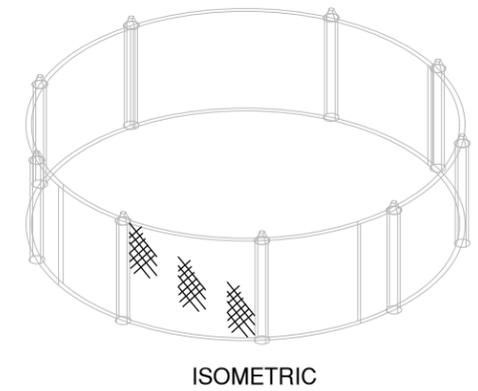
BRUSH PILE DETAIL



PLAN

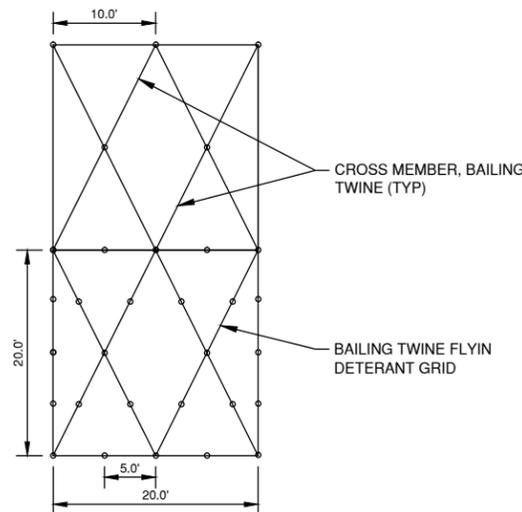
SUBMERGENT AQUATIC PLANT PROTECTION

\*SAME MATERIAL AS CARP EXCLUSION FENCING\*



ISOMETRIC

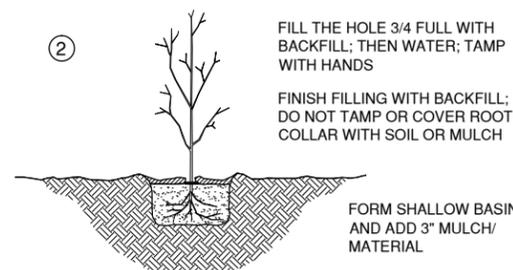
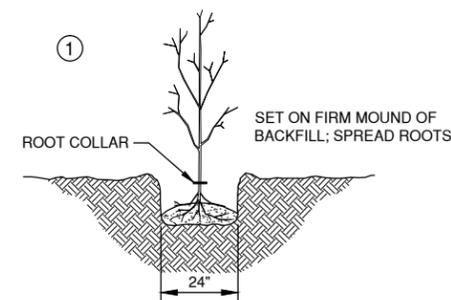
GOOSE EXCLUSION FENCING PLAN VIEW



CARP EXCLUSION FENCING PLAN VIEW

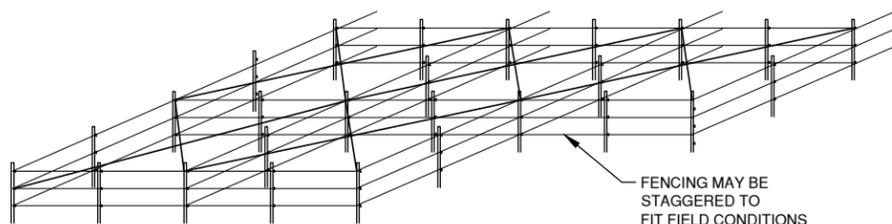
- NOTE:
- GOOSE FENCING MATERIAL SHALL BE 48" GREEN SNOW FENCE
  - GOOSE FENCING POST SHOULD BE 10' APART, CARP FENCING POST SHOULD BE 5' APART

NOTE:  
PRUNE DAMAGED OR WEAK ROOTS AND BRANCHES.

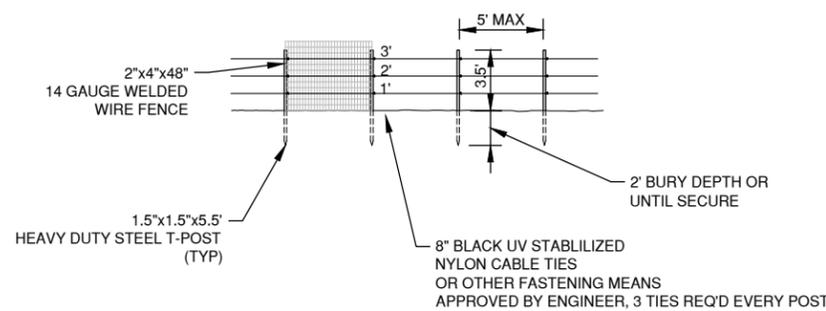


TYPICAL BARE-ROOT PLANTING DETAIL

GOOSE EXCLUSION FENCE ISOMETRIC VIEW

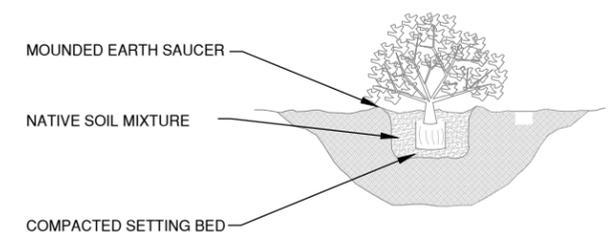


CARP EXCLUSION FENCE ISOMETRIC VIEW



CARP EXCLUSION FENCING ELEVATION VIEW

CARP AND GOOSE EXCLUSION FENCING DETAIL



TYPICAL POTTED TREE AND SHRUB PLANTING DETAIL

NOTE: SHRUB SHALL BEAR SAME RELATION TO FINISH GRADE AS IN NURSERY.

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 Plot Date: May 13, 2015 - 2:58pm  
 Layer: DETAILS 3

NO.	DATE	APPROV.	REVISION	NO.	DATE	APPROV.	REVISION

CONTRACT NO. 3775-15-01  
 MENEKAUNEE HARBOR RESTORATION PROJECT  
 CITY OF MARINETTE  
 MARINETTE COUNTY, WISCONSIN

MISCELLANEOUS DETAILS

DATE: 04/20/15  
 FILE: DETAILS  
 JOB NO.: 3775005

**Robert E. Lee & Associates, Inc.**  
 ENGINEERING, SURVEYING, ENVIRONMENTAL SERVICES  
 1250 CENTENNIAL CENTRE BOULEVARD  
 HOBART, WI 54155  
 INTERNET: www.releeinc.com

PHONE: (920) 662-9641  
 FAX: (920) 662-9141

SHEET NO.  
**6**

# G

## APPENDIX G

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Habitat Description and Botanical Survey Form





## **LABELED TAB – SPECIFICATIONS**

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**\*Place labeled tab BEFORE Division 1 divider page**

# 01

## DIVISION 01

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### GENERAL REQUIREMENTS

## SECTION 01 11 00

### SPECIAL PROVISIONS

#### PART 1 - GENERAL

##### 1.01 SUMMARY

- A. Work Included: Menekaunee Harbor Restoration Project; Contract No. 3775-15-01
- B. Related Sections and Divisions: Applicable provisions of the General Conditions and Supplementary Conditions shall apply to this section.

##### 1.02 CONTRACT DOCUMENTS—INTENT AND USE

###### A. Intent of Documents:

1. Singular notations and specifications shall be considered plural where application is reasonably inferred.
2. Mention or indication of extent of work under any work division or specification section is done only for convenience of Contractor and shall not be construed as describing all work required under that division or section.
3. Some individual sections may contain a list of related sections. The list of related sections in individual sections is provided for the convenience of Contractor and is not necessarily all-inclusive. Contractor may not rely upon this listing for determination of scope of work. Other sections of the specifications, not referenced in individual sections shall apply as required for proper performance of the work.
4. Command type sentences may be used in the Contract Documents. These sentences refer to and are directed to Contractor.
5. Symbols for various elements and systems are shown on the drawings. Should there be any doubt regarding the meaning or intent of the symbols used, a written interpretation shall be obtained from Engineer.

###### B. Use of Documents:

1. Contractor shall examine all specifications and drawings for the work, including those that may pertain to work Contractor does not normally perform with its own forces.
2. Contractor shall use all of the project drawings and specifications:
  - a. For a complete understanding of the project.
  - b. To determine the type of construction and systems required.
  - c. For coordination with other contractors.
  - d. To determine what other contractors.
  - e. To anticipate and notify others when work by others will be required.
  - f. And all other relevant matters related to the project.
3. Contractor is also bound by all requirements of the Contract Documents which are applicable to, pertain to, or affect its work, as may be shown or inferred by the entire set of project drawings and specifications.

##### 1.03 GENERAL WORK PROVISIONS

- A. Driveways and other access to residences, business, or other commercial properties shall be maintained at all times during construction. ***At the time of the preconstruction meeting, the Contractor shall submit a proposed work sequence for Engineer/Owner approval.***

- B. All utilities aboveground or underground that need to be supported during the prosecution of this contract shall be coordinated with the utilities and the cost thereof shall be the sole responsibility of the Contractor.
- C. The Contractor shall maintain local traffic in areas not under immediate construction. The Contractor will be responsible for immediate local traffic control signage. The signage and traffic control shall be according to the “Manual on Uniform Traffic Control Devices for Streets and Highways”, latest edition. The associated cost shall be included in the appropriate bid item of the Contractor’s bid.
- D. All trenches within existing or proposed paved or graveled roadways, driveways, sidewalks, and other hard surfaces shall be backfilled with Soil Class G1 and compacted to 95% of modified proctor.
- E. Extreme care shall be taken to protect all trees along the construction route, which are not marked for removal or within the right-of-way and easement areas. For damaged trees and trees that die due to construction, the Contractor shall be responsible for the cost of tree replacement up to \$1,000 per tree. The total amount shall be deducted from final contract payment.
- F. The Contractor will furnish the municipality and Engineer with a telephone list, including cell or home phone numbers, of key personnel available for after hours and weekend emergencies.
- G. At all times, the Contractor shall see that affected work site areas shall be kept drained and free of groundwater and surface water. The Contractor shall dispose of the water so as not to cause injury to public or private property or to cause a nuisance or menace to the public. Additionally, the Contractor shall prevent excessive dust; and he shall, at his own expense, provide adequate dust control measures acceptable to the Engineer.
- H. The Contractor shall implement all erosion control in conformance with the WDNR Conservation Practice Standards (Latest Edition). All existing and installed inlets shall have erosion protection. These items shall be incidental to the project.
- I. Restoration
1. All damaged, disturbed, or removed surfaces, structures, or utilities, whether private or public, shall be repaired, restored, and/or replaced to a condition equal to or better than that which existed prior to the start of the work, including all ditches, culverts, roadways, alleyways, field lawns, walkways, retaining walls, fences, buildings, driveways, mailboxes, and any other items that may exist in the construction area.
  2. Following initial soil disturbance, all areas shall be restored within one month, weather permitting.
  3. All disturbed areas within the right-of-way and outside the paved streets and all easements shall be topsoiled to provide a minimum depth of 6 inches with salvaged topsoil, fine graded, raked free of lumps and stones, seeded and mulched. Any additional topsoil required to return the site to a condition as good as or better than existing condition shall be the responsibility of the Contractor.
  4. All restoration will be paid for at the contract unit price as specified.
- J. The owner shall have prior claim to all surplus excavated material. All excess excavated material shall be disposed of on-site as directed by the Owner. The topsoil shall be removed prior to placing the material and replaced when completed. If the Owner does not desire to claim

surplus excavated material, the contractor shall be totally responsible for obtaining a disposal site. **NO** material shall be disposed of in a flood plain, wetland, or waterway.

- K. Clearing, grubbing, and stripping of the topsoil will be the responsibility of the Contractor, and shall be considered incidental to the appropriate bid item. The topsoil shall be temporarily stockpiled on-site.
- L. The subgrade condition and elevation shall be checked by the Engineer prior to placement of base course material. The base course condition and elevation shall be checked by the Engineer.
- M. Submit list of subcontractors to Engineer.
- N. Removal of concrete sidewalk, bituminous pavements, curb and gutter, and driveway shall include disposal by the Contractor at a site that will accept such material. This work shall be included in the appropriate bid item.
- O. Contractor shall not commence work on-site until all materials are approved and are on-site.
- P. Payment requests shall be submitted to the engineer in Excel software form on the form provided in Section 00 62 76, Application for Payment, page 00 62 76-3.
- Q. Contractor's insurance shall be provided as specified in the general & supplemental conditions. Builder's Risk, "All Risk" or open peril insurance shall be provided per SC-5.06A. There will be no exception to these requirements. Installation floaters in lieu of the Builder's Risk Insurance will not be accepted. The contractor shall coordinate with the insurance company to provide the required insurance.

1.04 SPECIAL REQUIREMENTS

- A. The owner supplied cut trees are located at the harbor site, and the owner supplied logs are located at W1509 Cleveland Avenue, Marinette, WI
- B. See Section 32 90 10, Native Landscaping, for warranty and maintenance expectations.
- C. Mobilization will be paid by the following:

<b>% Complete</b>	<b>Payment Amount of Bid Item</b>
5%	25%
25%	25%
50%	25%
75%	25%

- D. Sign board materials, design, delivery, installation, and all associated appurtenances are incidental to the mobilization bid item.
- E. Alternate bids will be awarded by the City based on available funding.
- F. Site debris will be paid by the Cubic Yard of material hauled off site. Truck measurement or an approved method of measurement determined by the Engineer and Contractor can be used to quantify the material removed.

- G. The *Available Project Information Section Tab*, the Habitat Restoration Plan includes additional information to supplement Specification Section 32 90 10, Native Landscaping and 32 95 00, Habitat Structures.

#### 1.05 OWNER-FURNISHED PRODUCTS

- A. Owner is responsible for the following items when supplying material or equipment to Contractor for installation.
1. Arrange for delivery of shop drawings, product data, samples, manufacturer's instructions, and certificates to Contractor.
  2. Delivery supplier's bill of material to Contractor.
  3. Arrange and pay for delivery to site.
  4. Inspect deliveries jointly with Contractor.
  5. Submit claims for transportation damage and arrange for replacement of damaged, defective or missing items.
- B. Contractor's responsibilities for Owner furnished new products are:
1. Handle products at the site, including uncrating and storage.
  2. Inspect deliveries jointly with Owner.
  3. Protect products from damage and from exposure to the elements.
  4. Assemble, install, correct, adjust, and finish products in accordance with the appropriate section of these specifications.
  5. Contractor shall coordinate manufacturer's services in accordance with Section 01 75 00.
  6. Contractor shall coordinate start-up and training in accordance with Section 01 75 00.
  7. Contractor shall complete all checklists in accordance with Section 0178 43 and submit to the Engineer.
  8. Repair or replace items damaged by Contractor at no additional cost to Owner.
  9. Contractor's responsibility for materials and equipment furnished by Owner shall begin at the point of delivery to the site. Materials and equipment already on the site shall become Contractor's responsibility on date of Notice to Proceed with Contract.
- C. The Owner will provide seven cut trees, most logs, cut trees are at harbor site and logs are located at W1509 Cleveland Avenue, Marinette, WI. Detailed shop drawings and installation instructions are available for review at the office of the Engineer: Robert E. Lee & Associates, Inc., 1250 Centennial Centre Boulevard, Hobart, WI 54155-8995.

#### 1.06 WORK SEQUENCE

- A. The Contractor shall submit a construction schedule documenting all phases of construction. The construction schedule shall be submitted in accordance with Section 01 32 19, Submittals.
- B. Final work to be completed will include site grading and landscaping.
- C. Operation and start-up of all equipment must be approved by the Engineer prior to proceeding. Start-up shall be in accordance with Section 01 75 00, Starting of Systems.

#### 1.07 PROJECT MILESTONES

- A. None.

#### 1.08 CONTRACTOR USE OF SITE

A. General:

1. The “area of the site” referred to in these specifications shall be limited to existing rights-of-way or easements as shown on the drawings.
2. Construction activities shall be confined within the area of the site limits.
3. From the start of work to completion Contractor is responsible for the care of the site and the premises which are affected by operations of work of this Contract.
4. Except for permanent site improvements provided under the Contract, Contractor shall restore property disturbed during the work, to the conditions which previously existed.
5. Work in occupied spaces shall be restricted to specified work and essential activities, such as making necessary connections and extending services or constructing temporary access ways. Such work shall be scheduled in advance with Owner.

B. Parking and Deliveries:

1. Contractor is responsible for control of traffic by vehicles and persons within the limits of its operations.
2. Parking for employees, subcontractors, and agents of Contractor shall be in areas subject to approval of Owner.
3. Access to the site for delivery of construction material or equipment shall be subject to approval of Owner.

C. Work in Private Right-of-Way

1. Whenever the work is to be prosecuted through property for which the Owner has obtained a license, permit, or easement, the Contractor shall abide fully with the terms of the license, permit, or easement, a copy of which is on file with the Owner.
2. Prior to final payment, the Contractor shall send a notice to all easement grantors by certified mail, return receipt requested, a copy of which shall be filed with the Owner. Said notice to be similar to the following:

The undersigned Contractor has completed the restoration of the construction site on which you have granted an easement for installation of certain utilities and improvements. If said site restoration is not completed to your satisfaction, please contact the Engineer, Robert E. Lee & Associates, Inc., 1250 Centennial Centre Boulevard, Hobart, WI 54155-8995, in writing, and arrangements will be made immediately to view the site and restore the site in conformance with our contract obligations.

If the Engineer, Robert E. Lee & Associates, Inc., 1250 Centennial Centre Boulevard, Hobart, WI 54155-8995, does not hear from you in writing within 10 days from the above date, site restoration of your property will be deemed completed and approved by you.

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(Name of Contractor)

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(Address of Contractor)

Owner shall furnish contractor with names and addresses of easement grantors.

## 1.09 OWNER OCCUPANCY

- A. The Owner will occupy the site during construction.
- B. Provide access for state and local review agencies.

## 1.10 EXISTING SERVICES AND STRUCTURES

- A. Interruption of existing services shall be kept to a minimum and shall be limited to times approved by the Owner.
- B. The Contractor shall coordinate with Owner and local utility companies in keeping the services in operation and repair any damages to the satisfaction of the Owner and local utility.
- C. Contractor shall not interrupt any existing services until written approval is received from the Owner.
- D. In accordance with Wisconsin Statute 182, the Contractor shall contact Diggers Hotline prior to beginning any excavations. A call to Diggers Hotline does not absolve the Contractor of the requirements of this statute.
- E. Contractor shall proceed with caution in excavating and preparing the site so that the location of existing structures can be determined. Contractor shall keep an accurate record of existing services and structures and provide a copy to the Owner. The record shall include adequate measurements, depths, and conditions.

## 1.11 PROTECTION OF WORK

- A. Contractor shall protect the Owner's property from damage, dust, debris and other resulting construction activities.
- B. Contractor shall keep property free from dirt, dust and fumes from construction activities at all times.
- C. Property damaged by the Contractor shall be repaired or replaced by the Contractor to the satisfaction of the Owner.

## **PART 2 - PRODUCTS**

### 2.01 OWNER-FURNISHED PRODUCTS

- A. Owner-furnished products include seven (7) cut trees (located at harbor site), and most of the logs (located at W1509 Cleveland Avenue in Marinette, WI).

## **PART 3 - EXECUTION**

NOT APPLICABLE

- END OF SECTION -

## SECTION 01 22 00

### MEASUREMENT AND PAYMENT UNIT PRICE BID ITEMS

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. This section specifies requirements for following:
1. Method of measurement.
  2. Method of payment.
- B. The supplemental bid items listed are in addition to the scope of work as shown on the drawings and described in the specifications.

##### 1.02 CONTRACT ITEMS

- A. Over excavation/Backfill
1. The unit price per cubic yard shall include all materials, labor, tools and equipment required for excess excavation, removal and off-site disposal of unsuitable soils and the placing, spreading and compacting of Class C- I fill material. Unsuitable soils shall be excavated to a depth as determined by the soils report and Engineer.
  2. Measurement for payment shall be made by the Engineer using appropriate volume calculations of the "cut" material, in-place.
  3. Payment shall be made per cubic yard of "cut" material, "in-place".
  4. The unit price payment shall be made for all excavation and backfill required per the soils report and as shown on the plans.
- B. Rock Removal
1. The unit price per cubic yard in addition to that shown in the soil boring, if applicable shall include all materials, labor, tools and equipment required for rock removal.
  2. Measurement shall be made by the Engineer using appropriate volume calculations of the "cut" material.
  3. Payment shall be made per cubic yard.
- C. Asphaltic Concrete Pavement and Patch
1. These items consist of the following:
    - a. Asphalt work in areas requiring full lane width removals.
    - b. Asphalt patches (including driveway patches) in trench areas only.
  2. Unit payment – listed respectively.
    - a. Full lane width removal areas – square yard.
  3. Measurement:
    - a. Square yard: measurement shall be based on the following:
      - 1) Determine by measuring the area of bituminous pavement compacted in place.
      - 2) Delivery tickets submitted daily.
  4. Thickness shall be as shown on the plans, or if not shown, then as required in Section 32 12 16, Asphaltic Concrete Pavement.

5. The following work shall be included in the unit price and will be considered incidental cost items:
  - a. Furnishing, placing, spreading, and compacting asphalt as required in Section 32 12 16, Asphaltic Concrete Pavement.
  - b. Site restoration.
  - c. Restoring pavement areas damaged outside trench "Pay Width".
  - d. Prepare edges for paving by sawcutting as required in Section 31 23 16.20, Cutting and Patching (Roadways).
  - e. Furnishing and applying a tack coat between the binder course and surface course as needed and directed by the engineer.

6. Density Deficiency
  - a. Density shall be measured by averaging the nuclear density test required for a day's production placed.
  - b. Should the average density fall below specified densities, the Owner may accept the deficient work in accordance with the terms of Section 00 72 00, Standard General Conditions of the Construction Contract. Payment will be made at an adjusted price as specified in the following table:

PERCENT DENSITY BELOW SPECIFIED MINIMUM	PAYMENT FACTOR (PERCENT OF CONTRACT PRICE)
From 0.5 to 1.0 inclusive	95%
From 1.1 to 1.5 inclusive	85%

- c. If the specified density deficiency is greater than 1.5%, the material shall be removed and replaced with a mixture to the specified density and, when acceptably replaced, will be paid for at the contract unit price.

7. Thickness Deficiency
  - a. Thickness deficiency shall be verified using theoretical tonnage. If the in place tonnage is greater than 10 percent below the theoretical tonnage the following shall apply.
    1. Thickness shall be measured by averaging four (4) core samples taken after the final course has been compacted in place. Sample locations shall be determined by the Engineer.
    2. The unit price per square yard will be computed proportional to the average thickness of four cores as follows:

Deficiency in Thickness Determined By:

<u>Cores in Inches</u>	<u>Percent of Unit Price Allowed</u>
0.00 to 0.125	95%
0.126 to 0.25	85%

3. If the thickness deficiency is greater than 0.25 inches, the material shall be removed and replaced with a mixture to the specified thickness, and when acceptably replaced, will be paid for at the contract unit price.

D. Crushed Aggregate Base Course

1. These items consist of crushed aggregate base course quantities as follows:

- a. Along roads and alleys requiring full lane width replacement. Also, along shoulders unless paid for under separate bid item.
2. Unit payment - listed respectively:
  - a. Full lane-width removal areas – square yard, unless paid for under separate bid item.
3. Measurement:
  - a. Square Yard: Measurement shall be based on the following:
    - 1) Determine by measuring the area of crushed aggregate base course compacted in place per plan details.
4. The following work shall be included in the unit price and will be considered incidental cost items:
  - a. All necessary excavation, shaping, fine grading, and compacting to attain the required cross-sectional contour.
  - b. Prepare edges for paving by sawcutting as required in Section 31 23 16.20, Cutting and Patching (Roadways).
  - c. Base course material as required in Section 32 11 23, Crushed Aggregate Base Course.
  - d. Where full lane width replacement is required, all excavation of surface and base materials, shaping, fine grading and compaction outside the trench width as necessary to attain the required cross-sectional contour.

E. Sidewalk

1. This item includes replacing sidewalk in allowable trench areas and new sidewalk where shown on the plans, all in accordance with Section 03 33 03, Cast-in-Place Concrete Street Work Pavement, Curb and Gutter, Sidewalk, and Driveway.
2. Unit payment - square foot.
3. Measurement shall be made along the edge of concrete for sidewalks. Area will be calculated based on actual length and width. Irregular shaped pours will be calculated based on the average length and width.
4. Thickness and width shall be as shown on the plans or as required in Section 31 23 33, Trenching, Backfilling and Compacting.
5. The following work shall be included in the unit price and will be considered incidental cost items:
  - a. Excavation and preparation of foundation including furnishing aggregate base.
  - b. Forming.
  - c. Placing and finishing concrete.
  - d. Concrete material.
  - e. Site restoration.
  - f. Handicap ramps (excluding curb).
  - g. Sidewalk steps.
  - h. Expansion and contraction joints.
  - i. Sawcutting as required by Section 31 23 16.20, Cutting and Patching (Roadways)

**PART 2 - PRODUCTS** - NOT APPLICABLE

**PART 3 – EXECUTION** - NOT APPLICABLE

- END OF SECTION -

## SECTION 01 31 19

### PROJECT MEETINGS

#### **PART 1 - GENERAL**

##### 1.01 SUMMARY

A. Work Included: This section includes all project meetings required during construction.

##### 1.02 RELATED SECTIONS AND DIVISIONS:

1. Applicable provisions of the General Conditions shall govern the work in this section.
2. Section 01 32 19 – Submittals.
3. All related equipment specifications.

##### 1.03 MEETINGS

- A. Project meetings will be held throughout the project at intervals agreed to by the Engineer, Owner and Contractor.
- B. Contractor's project manager, job superintendent, subcontractors and necessary equipment suppliers shall attend the project meetings, as appropriate. Contractor's representative shall have the authority to bind the Contractor to decisions at the meeting.
- C. The following meetings, at a minimum shall be attended by the Contractor representatives, Engineer, and Owner:
1. Preconstruction Meeting
  2. Monthly Progress Meeting
  3. Project Close-Out Meeting
- D. Notice of meetings shall be e-mailed to those required to attend and copies to interested parties such as suppliers and governmental agencies.
- E. The Engineer shall be responsible for the mailing of meeting notices, meeting agenda and meeting minutes.
- F. The Contractor shall submit typed reports detailing the project schedule, schedule compliance and future construction plans affecting the project schedule at the project meetings. The Contractor shall keep the project schedule updated throughout the construction period.

##### 1.04 EQUIPMENT INSTALLATION AND START-UP MEETINGS

- A. When required in the individual specification sections, the Contractor shall coordinate an equipment installation meeting prior to beginning the work.
- B. When required in the individual specification sections, the Contractor shall coordinate a start-up meeting prior to start-up of the equipment.
- C. Contractor shall be responsible for the mailing of meeting notice, meeting agenda and meeting minutes.

- D. Contractor shall be responsible for coordinating the attendance of all parties involved in the work.
- E. Contractor shall notify the Engineer at least 7 days prior to the meeting date.
- F. Contractor shall record the meeting minutes and distribute within 3 working days after the meeting.

**PART 2 - PRODUCTS**

NOT APPLICABLE

**PART 3 - EXECUTION**

NOT APPLICABLE

- END OF SECTION -

## SECTION 01 32 19

### SUBMITTALS

#### **PART 1 - GENERAL**

##### 1.01 SUMMARY

- A. Work Included: This Section includes administrative and procedural requirements for submittals required for performance of the work, including the following:
1. Contractor's progress schedule.
  2. Submittal schedule.
  3. Shop drawings.
  4. Submittal Transmittal Data Sheet.
  5. Product data.
  6. Samples.
  7. Quality assurance submittals.
- B. Related Sections and Divisions:
1. Applicable provisions of the General Conditions shall govern the work in this section.
  2. Requirements for submittals are described in other sections of the specifications.

##### 1.02 IDENTIFICATION OF SUBMITTALS

- A. The Contractor shall mark each submittal and re-submittal by providing the information described in 1.06, Submittal Transmittal Data Sheet.
- B. The Contractor shall stamp each submittal indicating that submittal was reviewed by the Contractor and meets the requirements of the plans and specifications. Unstamped submittals will not be reviewed by the Engineer and returned.

##### 1.03 CONSTRUCTION SCHEDULE

- A. The Contractor shall prepare and submit a detailed progress schedule in accordance with the General Conditions. The construction schedule shall be of sufficient detail to assure adequate planning and execution of the work and provide an appropriate basis for monitoring and evaluation of the progress of work.
- B. The progress schedule shall indicate the sequence of all work including the start date, completion date and duration.
- C. The progress schedule shall incorporate shop drawing and sample submittals schedule.
- D. If, at any time during the Project, Contractor fails to complete an activity by its latest scheduled completion date, Contractor shall, within 3 working days of notification by Engineer, submit to Engineer written statement as to how and when work force will be reorganized to return Contract to current schedule.
- E. When it becomes apparent from progress evaluation and updated schedule data that milestone completion or Contract completion dates will not be met, Contractor shall take some or all of following actions.

1. Increase construction staffing in such quantities and crafts as shall substantially eliminate backlog of work.
  2. Increase number of working hours per shift, shifts per work day, work days per week, or amount of construction equipment, or combination thereof sufficient to substantially eliminate backlog of work.
  3. Reschedule work items to achieve concurrency of accomplishments.
- F. Addition of equipment or construction forces, increasing working hours or other method, manner or procedures to return to current Construction Progress Schedule will not be considered justification for amending Contract Documents or treated as acceleration.
- G. The progress schedule shall be updated throughout the construction period. The Contractor shall revise the schedule monthly and submit with the monthly payment request. The progress schedule will be reviewed at the monthly construction progress meetings.

#### 1.04 SUBMITTAL SCHEDULE

- A. Contractor shall make all submittals far enough in advance of scheduled installation dates to ensure adequate time for review and approval by the Engineer. This schedule shall also take into account possible revisions and resubmittals.
- B. To avoid the need to delay installation as a result of the time required to process submittals, allow sufficient time for submittal review, including time for resubmittals.
1. Allow 4 weeks for submittals.
  2. Allow 2 weeks for re-submittals.
  3. No extension of Contract Time will be authorized because of failure to transmit submittals to the Engineer sufficiently in advance of the work to permit processing

#### 1.05 SHOP DRAWINGS

- A. All shop drawings shall be addressed to shop drawing coordinator at Robert E. Lee & Associates. The shop drawing coordinator will be identified at the pre-construction meeting.
- B. Shop drawings shall be submitted under an industrial submittal transmittal data sheet as described in 1.06.
- C. Shop drawings shall include technical data including drawings, diagrams, performance curves, data sheets, schedules, templates, patterns, reports, calculations, instructions, measurements and other pertinent data. Shop drawings shall be submitted for all manufactured or fabricated items.
- D. Shop drawings shall be checked, approved and stamped by the Contractor in accordance with the General Conditions before submitting to the Engineer for review and approval.
- E. Do not use shop drawings without an appropriate final stamp indicating action taken.
- F. Except for submittals for the record or information, where action and return is required, the Engineer shall review each submittal, mark to indicate action taken, and return promptly. The Engineer/Architect will stamp each submittal with a uniform action stamp. The Engineer/Architect will mark the stamp appropriately to indicate the action taken, as follows:
1. "No Exceptions Taken": The work covered by the submittal may proceed provided it complies with requirements of the Contract Documents.

2. "Make Corrections Noted": The work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents.
3. "Revise and Resubmit": Do not proceed with work covered by the submittal. Resubmit without delay. Do not use, or allow others to use, submittals marked "Revise and Resubmit" at the Project Site or elsewhere where work is in progress.
4. "Rejected": Do not proceed with work covered by the submittal. Resubmit without delay. Do not use, or allow others to use, submittals marked "Rejected" at the Project Site or elsewhere where work is in progress.
5. "Submit Specified Item": Item submitted does not meet specifications. Submit exact item specified.

G. Shop drawings that require resubmission shall be revised as follows:

1. Revise initial drawings and data and resubmit as required.
2. Provide an itemized list of all changes other than those requested by the Engineer in the cover letter.

#### 1.06 SUBMITTAL TRANSMITTAL DATA SHEET

A. Shop drawings shall be submitted by specification section. The Contractor shall submit a submittal transmittal data sheet with each shop drawing, refer to the form at the end of this section. Include all required submittal information as indicated in the specification section. Combining specification sections on submittal sheets is NOT PERMITTED.

B. The submittal transmittal data Sheet must be filled out correctly or the submittal will be returned. The following information MUST be included:

1. Date.
2. Project Name.
3. Contractor.
4. Submittal Number.
5. Previous Submittal Number, if applicable.
6. Specification Section Number.
7. Submittal for.
8. Information Block.
9. Name and Signature of Contractor.

C. The submittal transmittal data sheet will be provided by e-mail, if desired by the Contractor.

#### 1.07 PRODUCT DATA

A. Contractor shall provide product data as required to supplement shop drawings.

B. Submittal Transmittal Data Sheet shall be provided for each product data submittal.

C. Product data shall include illustrations, schedules, installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams, and performance curves.

D. Contractor shall mark each copy of the product data to identify products, models, options and other pertinent.

- E. Submit five copies of each required submittal.
- F. Contractor shall include all Material Safety Data Sheets (MSDS) required by OSHA.

#### 1.08 SAMPLES

- A. Contractor shall provide samples where noted or specified.
- B. Submittal Transmittal Data Sheets shall be provided for each sample submittal.
- C. Samples are physical examples which illustrate the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture, and pattern.
- D. Samples shall have attached labels for identification bearing the following information:
  - 1. Project name.
  - 2. Description of sample.
  - 3. Contractor name.
  - 4. Standards met by the sample.
  - 5. Submit three samples for review.
- E. Approval of the samples shall be obtained before proceeding with the work relating to the sample.
- F. Samples not incorporated into the work, or otherwise designated as the Owner's property, are the property of the Contractor and shall be removed from the site.
- G. Field samples shall comply with submittal requirements to the fullest extent possible.

#### 1.09 QUALITY ASSURANCE SUBMITTALS

- A. Submit quality-control submittals, including design data, certifications, manufacturer's instructions, manufacturer's field reports, and other quality-control submittals as required under other sections of the specifications.
- B. Submittal Transmittal Data Sheets shall be provided for each quality assurance submittal.
- C. Inspection and Test Reports shall be submitted as required by other sections of the specifications.

### **PART 2 - PRODUCTS**

NOT APPLICABLE

### **PART 3 - EXECUTION**

NOT APPLICABLE

- END OF SECTION -

# SUBMITTAL TRANSMITTAL DATA SHEET

(Attach to Each Submittal)

DATE: \_\_\_\_\_ PROJECT NAME: Menekaunee Harbor Restoration Project

CONTRACTOR: \_\_\_\_\_ CONTRACT NO.: 3775-15-01

SUBMITTAL NO. \_\_\_\_\_ New Submittal \_\_\_\_\_ Resubmittal \_\_\_\_\_ Previous Submittal No. \_\_\_\_\_

SPECIFICATION SECTION NO. \_\_\_\_\_

(Cover only one section with each transmittal)

SUBMITTAL FOR: \_\_\_\_\_ Shop Drawings \_\_\_\_\_ Product Data \_\_\_\_\_ Samples  
\_\_\_\_\_ O&M Information \_\_\_\_\_ Proposed Substitution \_\_\_\_\_ Other

Specifications Section	Number of Copies	Description ( )	Catalog Drawing or Brochure No.

I certify that the above submitted item has been reviewed in detail and is correct and in strict conformance with the contract drawings and specifications, except as otherwise stated, and is stamped accordingly.

\_\_\_\_\_  
Signature of Contractor

---

## SUBMITTAL REVIEW (**FOR ENGINEER'S USE ONLY**)

TO: \_\_\_\_\_ TARGET DATE: \_\_\_\_\_

REVIEWER INITIALS AND DATE: \_\_\_\_\_

COMMENTS \_\_\_\_\_

### DISPOSITION:

1. No Exceptions Taken.

2. Make Corrections Noted.

3. Revise and Resubmit.

4. Rejected.

5. Submit Specified Item.

### **Robert E. Lee & Associates, Inc.**

Checked for conformance with design concept of project and general compliance with information given in the contract documents. Any action shown is subject to the requirements of the plans and specifications. Contractor is responsible for omissions. Quantities, environmental requirements, dimensions which shall be confirmed and correlated at job site, his work with that of all other trades and the satisfactory performance of his work.

Returned By: \_\_\_\_\_

Date: \_\_\_\_\_

## SECTION 01 32 33

### CONSTRUCTION PHOTOGRAPHS

#### **PART 1 - GENERAL**

##### 1.01 SUMMARY

- A. Work included: This section includes photography of:
1. Utility construction routes.
  2. Building sites.
- B. Related Sections and Divisions:
1. Applicable provisions of the General Conditions shall govern the work in this section.
  2. Section 01 32 19, Submittals.

##### 1.02 UTILITY CONSTRUCTION OR ROADWAY CONSTRUCTION ROUTES

- A. Before construction may start in any section, the contractor shall deliver pre-construction photographs to the Engineer. The photographs shall be collated by project stationing. The photographs shall include:
1. Intervals of 100-feet along project route. (Indicate by station)
  2. Trees and shrubbery.
  3. Surfacing, sidewalks, driveways, and curb and gutter.
  4. Structures.
  5. Fencing, signs, and mail boxes.
  6. Culverts and topographic features.

##### 1.03 BUILDING SITES

- A. Building sites shall include wastewater treatment plants, water treatment plants, elevated tanks, bridges, and other structures.
- B. Before construction may start, the Contractor shall provide pre-construction photographs to the Engineer. The photographs shall show building conditions and site features.

##### 1.04 PHOTOGRAPHS

- A. Photographs shall be in digital format, minimum 3.0 megapixels.
- B. The digital footnote file name shall include the date, name of photographer, name of structure, direction of view, and location on each photo.
- C. The Contractor shall provide two copies of each photo disc in .jpg format. The project name and project number shall be listed on each disc. A release of rights statement shall be signed and dated releasing any and all rights to the photos, and granting the City of Marinette and Wisconsin Department of Natural Resources (WDNR) all rights to the photos.

#### **PART 2 - PRODUCTS** - NOT APPLICABLE

#### **PART 3 - EXECUTION** - NOT APPLICABLE

- END OF SECTION -

## SECTION 01 40 00

### FIELD ENGINEERING

#### **PART 1 - GENERAL**

##### 1.01 WORK INCLUDED

- A. Work under this section is associated with:
1. Staking.
  2. Profile and topography.
  3. Records and markers.

##### 1.02 STAKING PROVIDED BY OWNER'S REPRESENTATIVE

- A. Staking for utility construction shall include:
1. Location of construction limits.
  2. Original staking of line and grade and location of all structures.
  3. Benchmarks on site.
- B. Staking for building construction.
1. Two construction baselines
  2. Establish benchmarks onsite.
  3. Location of construction limits.

##### 1.03 STAKING TO BE PROVIDED BY CONTRACTOR

- A. Any staking work required to complete the work and not specifically provided by the Owner's representative.
- B. Contractor shall establish grade from stakes or benchmarks established by the Owner's representative.

##### 1.04 CONSTRUCTION STAKING

- A. The Contractor shall provide the Owner's representative an advance notification of three working days when requesting construction staking.
- B. All construction shall be completed by the Contractor according to the alignments, grades, and baselines as established and set by the Owner's representative.
- C. The Contractor shall be responsible for the cost of restaking baselines, line & grade, structures & benchmarks unnecessarily destroyed or altered as a result of his negligence during the construction period.

##### 1.05 PROFILE AND TOPOGRAPHY

- A. Contours or profiles of the ground are shown on the drawings. These profiles and contours are reasonably correct, but are not guaranteed to be absolutely so, and together with any schedule of quantities are presented only as an approximation.

## 1.06 CONTRACTORS RECORDS AND MARKERS

- A. In addition to submittals and records required in other parts of the Contract Documents, Contractor shall record the following in such a manner that the Owner can locate same in the future by reference to recorded measurements:
1. Any deviations of underground covered work from contract drawings.
  2. On pipeline construction, the exact location and depth below grade of all:
    - a. Valves and pipelines.
    - b. Changes in direction.
    - c. or "T" branches on sewers.

### **PART 2 - PRODUCTS**

NOT APPLICABLE

### **PART 3 - EXECUTION**

NOT APPLICABLE

- END OF SECTION -

## SECTION 01 41 00

### REGULATORY REQUIREMENTS

#### PART 1 - GENERAL

##### 1.01 SUMMARY

- A. Work Included: This section includes regulatory requirements in regard to the project. Regulatory agency's requirements supersede this section.
- B. Related Sections and Divisions: Applicable provisions of the General Conditions shall govern the work in this section.

##### 1.02 OSHA REQUIREMENTS

- A. All work including site safety, equipment, materials and fabricated items provided by the Contractor shall comply with all OSHA requirements.

##### 1.03 PERMITS

- A. The Contractor shall obtain all permits required for this project. Where the permit requirements of any permit are more restrictive than the plans and specifications, the permit requirements shall govern.
- B. Contractor shall obtain required permits from all regulatory governmental agencies governing dewatering. Contractor shall be responsible to maintain existing private wells affected by dewatering activities. It shall be the responsibility of the Contractor to provide a water supply to the affected resident at no cost to the Owner. The Contractor shall be required to drill and close wells in accordance with WDNR requirement.

The governing agency in Wisconsin is:

Wisconsin Department of Natural Resources  
Private Water Supply Section  
P.O. Box 7921  
Madison, Wisconsin 53707

- C. Contractor shall comply with the WDNR requirements regulating the discharge of effluent from construction trenches. These provisions provide for the removal of suspended solids prior to direct discharge to surface water or wetlands. Contractor shall be responsible for obtaining any necessary permits.

##### 1.04 UNDERGROUND UTILITIES

- A. Under the provisions of Wisconsin Statutes, Section 182.0175, all contractors, subcontractors, and any firm or individual intending to do work on this contract shall contact all utility firms in the affected area of construction a minimum of three (3) working days prior to beginning construction so that affected utilities will be located and marked.

1.05 WASTEWATER TREATMENT DURING CONSTRUCTION—NOT APPLICABLE

1.06 PROPERTY MONUMENTS

- A. It shall be the responsibility of the Contractor to protect iron pipe and survey monuments from movement where possible. The cost of replacement of any monuments moved or destroyed by the Contractor shall be assessed to him.

1.07 WAGE RATES

- A. Not less than the prevailing wage rates shall be paid to the workers employed on this project.
- B. Contractor shall comply with the State or Federal wage rates governing this project.
- C. The wage rates for this project are provided in the Contract Documents.

**PART 2 - PRODUCTS**

NOT APPLICABLE

**PART 3 - EXECUTION**

NOT APPLICABLE

- END OF SECTION -

## SECTION 01 57 14

### EROSION CONTROL

#### **PART 1 - GENERAL**

##### 1.01 SUMMARY

- A. Work included: This section consists of construction and maintenance of temporary erosion and sediment control measures to be performed prior to and during construction.
- B. Related Sections and Divisions:
  - 1. Applicable provisions of the General Conditions shall govern the work in this section.
  - 2. All related construction sections.
  - 3. Erosion Control and Storm Water Management Plan.
  - 4. Section 01 32 19, Submittals.
- C. Unless shown otherwise, the contractor shall be responsible for selecting method of erosion and sediment control.
- D. The Contractor's erosion control measures must comply with the approved Erosion Control and Storm Water Management Plan, Wisconsin DNR Conservation Practice Standards, Latest Edition, WisDOT Product Acceptability List, Latest Edition, and local erosion control ordinances.

##### 1.02 SUBMITTALS

- A. Submit the following in accordance with Section 01 32 19, Submittals:
  - 1. Material samples upon request or owner's representative.
  - 2. Manufacturer's certification that materials delivered comply with requirements of this section.

#### **PART 2 - PRODUCTS**

- A. Products used for implementing the Erosion Control and Storm Water Management Plan and for conformance to WDNR Conservation Practice Standards, Latest Edition shall conform to the WisDOT Product Acceptability List, Latest Edition.

#### **PART 3 - EXECUTION**

- A. All installations shall conform to requirements of the WDNR Conservation Practice Standards, Latest Edition.
- B. The Contractor shall maintain a written record of all implemented erosion control practices as required by the WDNR. A suggested format is WDNR Form 3400-187, latest revision (see attached). The written record shall be maintained throughout final completion. Copies shall be forwarded to the Engineer upon request and with each pay request.

- C. Inspections of implemented erosion and sediment control best management practices must be performed weekly and within 24 hours after a precipitation event 0.5 inches or greater which results in runoff.
- D. Installed erosion control measures shall be removed from the site after 70% revegetation has been achieved, and all remaining disturbed areas shall be seeded, fertilized, and mulched.

**PART 4 – PAYMENT**

- A. Payment shall be based on the following:
  - 1. Erosion control shall be paid for at the contract price bid in accordance with the bid form.

- END OF SECTION –

**Notice:** Use of this specific form is voluntary, but the information contained on this form must be collected and kept by the permittee under s. NR 216.48(4), Wis. Adm. Code, for a construction site covered under the General WPDES Construction Site Storm Water Discharge Permit, Permit No. WI-0067831-2. This form is provided for the convenience of the permittee to meet the requirements of s. NR 216.48(4), Wis. Adm. Code. Multiple copies of this form may be made to compile the inspection report.

Inspections of implemented erosion and sediment control best management practices must be performed weekly and within 24 hours after a precipitation event 0.5 inches or greater which results in runoff.

Weekly written reports of all inspections conducted by or for the permittee must be maintained throughout the period of general permit coverage.

The information maintained in accordance with s. NR 216.48 (4) must be submitted to the Department upon request.

<b>Name of Permittee:</b>				
<b>Construction Site Name (Project):</b>			<b>Construction Site ID No.: (WDNR #)</b>	
<b>Location:</b>			<b>County:</b>	
<b>Contractor:</b>			<b>Field Office Phone:</b>	
<b>Note: Weekly inspection reports, along with erosion control and storm water management plans, are required to be maintained on site and made available upon request.</b>				
<b>Date of inspection (mm/dd/yy):</b> ____ <b>Time of inspection: Start:</b> ____ a.m./p.m. <b>End:</b> ____ a.m./p.m.		<b>Type of inspection:</b> <input type="checkbox"/> Weekly <input type="checkbox"/> Precipitation Event <input type="checkbox"/> Other (specify) _____ <b>Name(s) of individual(s) performing inspection:</b>		
<b>Weather:</b>				
<b>Description of present phase of construction:</b>				
Modifications Required	Yes	No	Not Applicable	Comments/Recommendations about the overall effectiveness of the erosion and sediment control measures. <b>Note:</b> For each item checked "Yes", complete the follow-up information on page 2.
Ditch Checks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Erosion Control Plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Erosion Mat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Grading Practices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Inlet Protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Mulch	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Offsite Sediment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Permanent Seeding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Schedule / Phasing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Silt Fence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Silt Screen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sod	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Stabilized Outlet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Temp. Diversion Channel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Temp. Settling Basin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Temporary Seeding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Tracking Pads	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Turbidity Barrier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Other (specify) ____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>Use the space below for detailed follow-up action items.</i>				

<b>Name of Permittee:</b>		
<b>Construction Site Name (Project):</b>		<b>Construction Site ID No.: (WDNR #)</b>
<b>Exact place of erosion/sediment control inspected</b>	<b>Type of erosion/sediment control and its observed condition</b>	<b>Description of any necessary maintenance or repair to erosion/sediment control, including anticipated date of completion</b>

## SECTION 01 78 36

### WARRANTIES

#### PART 1 - GENERAL

##### 1.01 SUMMARY

- A. **Work Included:** This Section specifies general administrative and procedural requirements for warranties and bonds required by the Contract Documents, including manufacturers standard warranties on products and special warranties.
- B. **Related Sections**
1. Applicable provisions of the General Conditions shall govern terms of the Contractor's special warranty of workmanship and materials.
  2. Section 01 77 00, Closeout Procedures.
  3. Specific requirements for warranties for the Work and products and installations that are specified to be warranted, are included in the individual Sections of Divisions 2 through 16.
- C. **Disclaimers and Limitations**  
Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

##### 1.02 DEFINITIONS

- A. **Standard Product Warranties** are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.
- B. **Special Warranties** are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

##### 1.03 WARRANTY REQUIREMENTS

- A. Starting date for all warranties shall be the date of Substantial Completion as indicated on Certificate of Substantial Completion, except that warranties for work completed after the date of substantial completion shall begin on date of acceptance of such work by the Owner.
- B. **Related Damages and Losses**  
When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.
- C. **Replacement Cost**  
Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Document. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.

- D. Owner's Recourse  
Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.
- E. The Owner reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required on such Work or part of the Work, until evidence is presented that entities required to countersign such commitments are willing to do so.

#### 1.04 SUBMITTALS

- A. When a special warranty is required to be executed by the Contractor, or the Contractor and a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Prepare warranties as various components of the project are completed.

### **PART 2 - PRODUCTS**

NOT APPLICABLE

### **PART 3 - EXECUTION**

NOT APPLICABLE

- END OF SECTION -

# 03

**DIVISION 03**

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**CONCRETE**

## SECTION 03 21 00

### CONCRETE REINFORCEMENT

#### **PART 1 - GENERAL**

##### 1.01 SUMMARY

- A. Work Included: Work includes furnishing, fabricating, and erecting all steel and fibers required for reinforcement of cast in place concrete as shown on the drawings.
- B. Related Sections and Divisions:
1. Applicable provisions of the General Conditions shall govern the work in this section.
  2. Section 01 32 19, Submittals.
  3. Section 03 31 13, Cast In Place Concrete.

##### 1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM):
1. ASTM A82 Steel Wire, Plain, for Concrete Reinforcement
  2. ASTM A185 Specification for Welded Steel Wire Fabric for Concrete Reinforcement.
  3. ASTM A615 Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
- B. American Concrete Institute (ACI):
1. ACI 315 Manual of Standard Practices for Detailing Reinforced Concrete Structures.
  2. ACI 318 Building Code Requirements for Structural Concrete.
- C. Concrete Reinforcing Steel Institute (CRSI):
1. CRSI Manual of Standard Practice

##### 1.03 SUBMITTALS

- A. Submit the following in accordance with Section 01 32 19, Submittals:
1. Before proceeding with the fabrication of the reinforcement, submit shop drawings showing the number, size, length, bending and arrangement of the reinforcement.
  2. All shop drawings shall be in accordance with ACI 315.
  3. Quality control submittals, when requested shall consist of a certified copy of each heat analysis performed by producer and certified copies of reinforcement strength tests.

##### 1.04 PRODUCT HANDLING

- A. Delivery:
1. The reinforcement shall be delivered to the site bundled, tagged and marked.
  2. Metal tags indicating the bar size, lengths, and other pertinent information corresponding to markings shown on placement drawings shall be used.
- B. Storage:

1. The reinforcement shall be stored at the site in a manner to prevent damage and accumulation of dirt and excessive rust.
2. Protect reinforcing steel and welded wire fabric from surface contamination and from distortion.

## **PART 2 - PRODUCTS**

### 2.01 MATERIALS

- A. Reinforcing bars shall comply with ASTM A615, Grade 60, deformed. Reinforcing bars required to be welded shall be ASTM A 706 low alloy.
- B. Steel wire shall conform with ASTM A82, plain, cold-drawn steel.
- C. Welded wire fabric shall comply with ASTM A 185, welded steel wire fabric.
- D. Reinforcement supports including bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcement shall be:
  1. Bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcing bars and welded wire fabric in place. Use wire bar-type supports complying with CRSI manual.
  2. For slabs-on-grade, use supports with sand plates or horizontal runners where base material will not support chair legs.
  3. For exposed-to-view concrete surfaces where legs of supports are in contact with forms, provide supports with legs that are protected by plastic (CRSI, Class 1) or stainless steel (CRSI, Class 2).
  4. When the supports bear directly on the ground and it is not practical to use steel bar supports, precast concrete blocks may be used to support the bottom lift of the reinforcement. The precast blocks must be solid and of a higher strength than the concrete being placed. The blocks must provide adequate support to the reinforcement and be of proper height to provide reinforcing cover. The use of face brick, hollow concrete block, rocks, wood or other unapproved objects will not be permitted.
- E. Polypropylene fibers engineered and designed for secondary reinforcement of concrete slabs shall comply with ASTM C1116, Type III. Fibers shall be not less than ¾-inch long or greater than 1½-inch long as manufactured by Fibermesh or equal.

### 2.02 FABRICATION

- A. General:
  1. Fabricate reinforcing bars to conform to required shapes and dimensions, with fabrication tolerances which comply with CRSI manual.
  2. In case of fabrication error, do not rebend or straighten reinforcement in a manner that will weaken the material.
  3. Unless otherwise noted, all end hooks dimensions shall conform with ACI standard hooks.
- B. Reinforcement with any of the following defects will not be permitted:
  1. Bar lengths, depths, and bends exceeding the specified tolerances.
  2. Bend or kinks not indicated on the drawings or final shop drawings.
  3. Bars with reduced cross section due to excessive rusting or other causes.

- C. Fabricate to dimensions shown on plans and ACI 318.

### **PART 3 - EXECUTION**

#### 3.01 PLACING REINFORCEMENT

##### A. General

Comply with the CRSI Manual's recommended practice for "Placing Reinforcing Bars," for details and methods of reinforcement placement and supports and as specified.

1. Avoiding cutting or puncturing vapor retard/barrier during reinforcement placement and concreting operations. Repair damages before placing concrete.
  2. Bars partially embedded in concrete shall not be field bent except as shown on the plans or permitted by the Engineer.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials that reduce or destroy bond with concrete.
  - C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers.
  - D. Place reinforcement to maintain minimum coverages as indicated for concrete protection. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.
  - E. Install welded wire fabric in lengths as long as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.
  - F. Polypropylene fiber reinforcement for slabs may be used in lieu of WWF with engineer's approval. Use fiber reinforcement at a minimum rate of 1.5 pounds fiber per batch yard of concrete or greater if required by fiber manufacturer.

- END OF SECTION -

## SECTION 03 33 03

### CAST IN PLACE CONCRETE – STREET WORK PAVEMENT, CURB AND GUTTER, SIDEWALK, AND DRIVEWAY

#### PART 1 – GENERAL

##### 1.01 SUMMARY

- A. Work Included: This section provides cast-in place concrete for street work.
- B. Related Sections and Divisions:
1. Applicable provisions of the General Conditions shall govern the work in this section.
  2. Section 01 32 19, Submittals.
  3. Section 31 23 16.10, Earthwork Roadway Construction.
  4. Section 32 11 23, Crushed Aggregate Basecourse.
  5. Section 03 21 00, Concrete Reinforcement.
  6. Section 03 21 10, Expansion and Contraction Joints.
  7. Section 03 35 19, Colored and Stamped Concrete.

##### 1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM).
1. ASTM A185 Specification for Welded Steel Wire Fabric for Concrete Reinforcement.
  2. ASTM C31 Making and Curing Concrete Test Specimens in the Field.
  3. ASTM C33 Specification for Concrete Aggregates.
  4. ASTM C39 Test for Compressive Strength of Cylindrical Concrete Specimens.
  5. ASTM C94 Specification for Ready-Mixed Concrete.
  6. ASTM C143 Test for Slump of Portland Cement Concrete.
  7. ASTM C150 Specification for Portland Cement.
  8. ASTM C172 Sampling Fresh Concrete.
  9. ASTM C231 Test for Air Content of Freshly Mixed Concrete by the Pressure Method.
  10. ASTM C309 Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
  11. ASTM D1557 Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-Lb (44.5-N) Rammer and 18-in. (457 mm) Drop.
  12. ASTM D1751 Specification for Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Type).
  13. ASTM E329 Standard Recommended Practice for Inspection Testing Agencies for Concrete, Steel, and Bituminous Materials Used in Construction.
- B. American Concrete Institute (ACI).
1. ACI 304 Institute ACI Measuring, Mixing, Transporting, and Placing
  2. ACI 305 Concrete, Recommended Practice for Hot Weather.
  3. ACI 306 Concreting, Recommended Practice for Cold Weather.
  4. ACI 347 Concreting, Recommended Practice for Concrete Formwork.

- C. State of Wisconsin Department of Transportation, Division of Highways; Standard Specifications for Highway and Structure Construction, latest edition.
- D. Wisconsin Concrete Pavement Association, Concrete Pavement Specification Guide, Latest Edition.

### 1.03 SUBMITTALS

- A. Submit shop drawings and test reports in accordance with Section 01 32 19, Submittals
- B. Submit the following information:
  - 1. Concrete Mix Design.
  - 2. Gradation of fine and course aggregate – ASTM C33
  - 3. Test of deleterious substances in fine and course aggregate – ASTM C33
  - 4. Specific gravity and dry rodded density of each aggregate.
  - 5. 7-day and 28-day compressive strengths for each concrete mix proposed.
  - 6. Certified mill test results for cement identifying brand, type, and chemistry of cement.
  - 7. Brand, type, principal ingredients, and amount of each admixture.
  - 8. Field quality control results.

### 1.04 QUALITY ASSURANCE

- A. Contractor shall contract with an established independent testing agency to provide testing services as follows:
  - 1. Material Acceptance Testing:
    - a. Design mix.
  - 2. Installation Testing:
    - a. Slump.
    - b. Air-entrainment.
    - c. Compressive strength test.
  - 3. Additional Testing:
    - a. Perform under following circumstances:
      - 1) Material failure.
      - 2) Change in ready-mix source.
      - 3) Design mix changes requested by Contractor.
- B. The following shall be in accordance with the stated references:
  - 1. Inspection and Testing: ASTM E329.
  - 2. Sampling: ASTM C172.
  - 3. Slump: ASTM C143.
  - 4. Air-Entrainment: ASTM C231.
  - 5. Compressive Strength Test: ASTM C31 and C39.
- C. Perform slump, air entrainment, and compressive strength tests required by this section with the following frequency:
  - 1. Two tests daily or one per 100 cubic yards placed, whichever number is greater.
- D. Compressive strength test shall consist of four standard test cylinders made from a single batch of concrete:
  - 1. Test one cylinder at 7 days.

2. Test two cylinders at 28 days.
  3. Remaining cylinder shall be tested in the event prior tests fail.
  4. Compressive strength tests shall be considered satisfactory when 28-day tests meet the following:
    - a. Test results equal or exceed specified compressive strength.
    - b. No individual test falls more than 500 psi below specified compressive strength.
  5. Failure of compressive strength tests shall result in following additional testing:
    - a. Provide two core samples of each portion of work affected and perform compressive strength tests.
    - b. Replace work if core samples do not equal or exceed specified compressive strength.
  6. When the testing results show that the work is of an acceptable nature, the acceptance of the work shall not relieve the Contractor from making corrections to the tested work during the warranty period.
- E. Test results will be reported in writing to Engineer, ready-mix producer, and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-day tests and 28-day tests.
- F. **Nondestructive Testing**  
Impact hammer, sonoscope, or other nondestructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.
- G. **Additional Tests**  
The testing agency will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Engineer. Testing agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42, or by other methods as directed.
- H. The cost of testing services shall be included in appropriate bid item.
1. Submit two (2) copies of the composition and strength testing results for design mix.

## **PART 2 - PRODUCTS**

### 2.01 CEMENT

- A. Portland cement shall be Type I, Type II, or Type III Portland Cement conforming to the requirements of ASTM Designation C150 or Type IA, Type IIA, or Type IIIA Air-Entraining Portland Cement conforming to the requirements of ASTM Designation C175.

### 2.02 AGGREGATE

- A. Aggregate shall conform to ASTM C33.
- B. Aggregate shall consist of clean, hard, durable sand and crushed rock, crushed gravel, or gravel. Coarse aggregate shall meet the grading requirements for size No. 57, 67 or 467 (Wis/DOT

Standard Size No. 1 or mixture of Size No. 1 and 2). Ratio of coarse aggregate to fine aggregate shall not be less than 1: 1 nor more than 2: 1.

#### 2.03 AIR-ENTRAINING ADMIXTURE

- A. Air-Entraining Admixture shall conform to ASTM C260.

#### 2.04 WATER-REDUCING, SET-CONTROLLING ADMIXTURES

- A. Water-Reducing, Set-Controlling Admixtures shall conform to ASTM C494, Type A for water-reducing, Type D for water-reducing and retarding, and Type E for water-reducing and accelerating.

#### 2.05 CURING AGENT MATERIALS

- A. Curing Agent Material shall be a liquid membrane-forming curing compound conforming to ASTM C 309 Type 2, white pigmented for standard concrete and clear for colored concrete. The material shall be composed of a blend of boiled linseed oil and high viscosity, heavy-bodied linseed oil emulsified in a water solution.

#### 2.06 REINFORCEMENT BARS

- A. All reinforced concrete to meet or exceed the minimum requirements of ACI 318.
- B. Reinforcement shall conform to Section 03 21 00 Concrete Reinforcement.
- C. Reinforcement shall be ASTM A615, Grade 60.
- D. Fabric shall be 6 inches by 6 inches – W2.0 x 2.0 WWF
- E. Polypropylene fibers shall comply with ASTM C1116, Type III.

#### 2.07 EXPANSION JOINT

- A. Expansion joints shall conform to Section 03 21 10, Expansion and Contraction Joints.
- B. Thickness shall be 1/2-inch.

#### 2.08 MIX DESIGN

- A. Concrete mixes shall be designed on the basis of compressive strength by methods specified in ACI 211.1, ACI 318, and ASTM C94 containing no less than the specified minimum cement content. Concrete mix designs complete with sample test results shall be submitted to the Engineer for approval prior to placing any concrete.

## 2.09 CONCRETE CLASSES

A. <u>Classes</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
Minimum compressive strength (psi)	28-day 4,000	28-day 2,000	28-day 3,000	3-day 3,000	8-hour 3,000
Minimum cement (bags/c.y.)	6	4.5	5.5	7	9
Air content, (%) by volume	6 ±1.5	2-4	2-4	6 ±1.5	6 ± 1.5
Maximum slump (inches)	3	4	4	3	3
Use	Pavements, curbs, walks, structures, end walls	Pavement base, cradles & inlet walls	Manhole bases,	High early strength special const.	Special high early strength, special const.

**Note:** Slip formed concrete shall contain 7.0% air entrainment ±1.5%.

B. Contractor may submit for approval alternate mix designs for non-water retaining concrete. Compressive strength of mix shall be verified. Contractor shall be responsible for removing and replacing all concrete not meeting required compressive strength.

C. Maximum aggregate size ¾-inch.

## 2.10 ADMIXTURES

A. Admixtures may be added to achieve a desired result provided such admixture does not adversely affect strength and durability of the concrete. Admixtures shall be utilized in conformance with State of Wisconsin Department of Transportation, Division of Highways' Standard Specifications for Highway and Structure Construction, Latest Edition.

B. Calcium chloride will not be permitted.

## **PART 3 - EXECUTION**

### 3.01 BATCHING

A. During hot weather, the temperature of the concrete shall be less than 90°F. Work shall be in accordance with ACI 305, "Recommended Practice for Hot Weather Concreting."

B. During cold weather, no frozen materials or materials containing ice shall be used. Temperatures of materials, including mixing water, shall not exceed 140°. When placed in forms the concrete shall have a temperature between 50°F and 90°F. Work shall be in accordance with ACI 306, "Recommended Practice for Cold Weather Concreting."

### 3.02 MIXING AND DELIVERY

A. Ready-mixed concrete shall be mixed and delivered in accordance with ASTM C94 and ACI 304. The production facilities shall comply with the requirements of the National Ready Mixed Concrete Association Certification Plan as regards materials storage and handling, batching equipment, central mixer, truck mixers, agitators, non-agitating units, ticketing system, etc.

- B. Concrete shall be delivered to the site of the work and the mixed concrete discharged completely within 1-1/2 hours after water has been added to cement. In hot weather, or under conditions contributing to quick stiffening of concrete, this time may be reduced by the Engineer.
- C. No water shall be added on the job unless authorized by the Engineer; the amount of water, if added, shall be recorded on all copies of the delivery ticket hereinafter required. If water is permitted to be added to mixed concrete upon arrival at the job, an additional mixing of 30 revolutions of the drum shall be required.
- D. Concrete delivered shall arrive at the site having a temperature not less than 50°F nor greater than 90°F unless otherwise permitted by the Engineer.
- E. Truck-mixed concrete; mix each batch for 70 or more revolutions at the manufacturer designated mixing speed. Do not exceed 300 total revolutions per batch, the sum of the revolutions at mixing and agitating speeds. Begin mixer revolutions only after all materials, including mixing water are in the mixer.

### 3.03 DELIVERY TICKETS

- A. With each load of concrete delivered to the job there shall be furnished by the ready-mixed concrete producer duplicate delivery tickets, one for the Contractor, and one for the Engineer/Architect. Delivery tickets shall provide the following information:
  1. Date and serial number of ticket;
  2. Name of ready-mixed concrete plant;
  3. Job location;
  4. Contractor;
  5. Type and brand name of cement;
  6. Mix number or specified cement content in bags per cubic yard of concrete;
  7. Truck number;
  8. Time dispatched stamped by a time clock;
  9. Amount of concrete in load in cubic yards;
  10. Admixtures in concrete, if any;
  11. Maximum size of aggregate;
  12. Water added at job, if any;
  13. Slump of concrete ordered

### 3.04 PREPARATION OF THE SUBGRADE

- A. Excavate subgrade to line and grade shown on plans and details.
- B. Thoroughly compact the subgrade and finish to a trim surface. All soft or unsuitable material shall be removed and replaced with specified materials.
- C. Provide crushed aggregate base course to thickness as shown on the plans and details.
- D. Compact to minimum 95 percent Modified Proctor density, ASTM D1557.
- E. Surplus material may be used in fill areas.
- F. Excess material shall be disposed at a site provided by Contractor.

### 3.05 FORMING

- A. Conform to ACI 347.
- B. Forms shall result in a final structure that conforms to shapes, lines, and dimensions of slabs as required by plans and specifications.
- C. Forms shall be properly braced to maintain position and shape.
- D. Clean and coat forms with clear, non-staining mineral or paraffin base form oil.
- E. Reinforcement, forms, and ground with which concrete will be in contact shall be free from frost and debris.
- F. Soak subgrade before placement of concrete slabs on grade.
- G. Remove laitance and other unsound material before additional concrete is placed against hardened concrete.
- H. Have equipment on hand to protect newly placed concrete from rain, freezing, and hot weather until it has hardened sufficiently to resist damage.
- I. Unless noted otherwise, furnish the following minimum thicknesses:
  - 1. Sidewalks: 4-inch
  - 2. Driveways and sidewalks through driveways: 6-inch

### 3.06 SLIP FORMING

- A. Coordinate mixing, delivering, and placing of the concrete to provide a uniform progress with the stopping and starting of the machine held to a minimum.
- B. Slip form machine shall be capable of placing the specified concrete section with an adequate amount of vibration to preclude the possibility of honeycomb formation.

### 3.07 PLACING

- A. Contractor shall notify Engineer of concrete placing schedule one day in advance of pour to allow for inspection of reinforcing and forms.
- B. Once placing operation commences, it shall be carried out as a continuous operation until a section is completed.
- C. Placing should be carried on in such manner that the concrete in the form is still plastic and can be integrated with fresh concrete.
- D. Concrete shall not be placed in water. Water level shall be removed or lowered in a manner approved by Engineer.

- E. Concrete shall be placed before initial set has occurred. Excess water will not be permitted. Powdering a mixture with cement to absorb excess water will not be permitted.
- F. Dump trucks may be used for transporting mixed concrete to the desired location. If segregation of the concrete becomes evident, the use of dump trucks will not be permitted.
- G. Where chutes are used to transport concrete, they shall be of metal or wood with metal lining. They should have a slope not exceeding one vertical to two horizontal and not less than one vertical to three horizontal so that the concrete will travel fast enough to keep the chute clean but slow enough to avoid segregation of materials. The end of each chute shall be provided with a baffle to help prevent segregation, or the concrete should be discharged through a tremie or elephant trunk directly into the form.
- H. Concrete shall not fall freely more than 4 feet. Elephant trunks and/or tremies shall be used to prevent free fall of the concrete.
- I. Concrete shall be deposited in approximately horizontal layers not to exceed 18 inches in height to avoid segregation due to re-handling and flowing.
- J. Pumping equipment shall be of suitable type, without Y-sections, and with adequate pumping capacity. Loss of slump in pumping shall not exceed 1-1/2 inches.
- K. The concrete shall be thoroughly compacted by means of an approved vibrator, with the period of vibration being not less than 2 seconds nor more than 5 seconds at any one point.

### 3.08 PLACEMENT OF DETECTABLE WARNING FIELDS

- A. Physical characteristics of the concrete shall be consistent with the contract specifications.
  - 1. Concrete shall be poured and finished, to required dimensions and slope prior to placement.
  - 2. Cast-in-place tiles shall be tamped or vibrated into fresh concrete to ensure field of tile is flush to the adjacent concrete surface and all voids under tile are filled. Maximum tolerance for elevation differences between tile and adjacent surface is 1/16".
    - a. Concrete shall be troweled around the tile perimeter to the field level of the tile.
    - b. Following placement and approved placement slope and location, before the concrete sets two suitable weights of 25 lbs each shall be placed on each tile to ensure solid contact to concrete.
    - c. Following curing of concrete, protective plastic wrap shall be removed from the tile face.

### 3.09 FINISHING

- A. Finish concrete true to required level and grade to a tolerance of:
  - 1. True plane within 1/4-inch in 10 feet.
- B. Float as follows:
  - 1. Tamp concrete to force aggregate away from surface.
  - 2. Screed with straight edges and bring to required line.
  - 3. Float surface to a true and uniform plane with no coarse aggregate visible.
  - 4. Do not dust surface with dry materials to remove excess water.

- C. Broom at right angles to traffic.
- D. Face surfaces of the curb and gutter shall be troweled and finished smooth.
- E. Round exposed edges with an edger having ¼-inch radius.
- F. Point honeycombed areas with mortar composed of three parts sand and one part Portland cement immediately after the curb and gutter has been placed.

### 3.10 ENVIRONMENTAL REQUIREMENTS

- A. Follow ACI 305 whenever mean surrounding air temperature equals or exceeds 80°F (27°C).
- B. Do not place concrete whenever air temperature equals or exceeds 90°F (32°C).
- C. Follow ACI 306 whenever mean surrounding air temperature is below 40°F (4.5°C).
- D. Do not place concrete during rain, sleet, or snow unless protection is provided.

### 3.11 EXISTING CONCRETE FLATWORK

- A. When abutting to existing flatwork, provide the following:
  1. Saw cut existing concrete at construction limits.
  2. Install expansion joints between existing and new construction.

### 3.12 CONTRACTION JOINTS

- A. Sawcut curb and gutter at 10-foot intervals to a minimum depth of 2 inches.
- B. For sidewalks, use sidewalk width as maximum spacing or 5 feet, whichever is greater. Do not use less than 3 feet or greater than 12 feet of spacing.
- C. Sawcut pavement as shown on the pavement joint details.
- D. Saw joints as soon as practical after concrete has set sufficiently to preclude raveling during the sawing and before any shrinkage cracks occur.

### 3.13 EXPANSION JOINTS

- A. Place as follows:
  1. 300-foot maximum spacing on tangent sections curb and gutter and sidewalk.
  2. Where radial curb and gutter meet tangent sections.
  3. Adjacent to existing joints in abutting concrete paving.
  4. Place at right angles to the flowline and surface of the gutters.
  5. Expansion joint material shall be one piece and extend the full depth and width of the curb and gutter or concrete section.
  6. Place expansion joint in pavement sections as shown on the plans and details.

### 3.14 RESTORATION

#### A. Backfilling

1. Backfill low areas with soil that meets Engineer's prior approval.
  - a. Between concrete structure and property line.
  - b. Shape to line and grade to permit landscaping.

B. Landscape areas disturbed by construction in accordance with section: "Landscaping."

C. Contractor shall be responsible for all trees and shrubs damaged during construction and will be obligated to make restitution for said damage.

D. If Contractor fails to complete restoration or provide maintenance prescribed, the Owner reserves the right to complete this work and deduct it from moneys due.

### 3.15 CURING AND PROTECTION

A. Use a white pigmented curing agent conforming to ASTM C309, Type 2.

B. Apply curing agent at a rate of one gallon per 200 feet.

C. Hot Weather Conditions: Conform to ACI 305.

D. Cold Weather Conditions: Conform to ACI 306 & WisDOT Standard Specifications Latest Edition 415.3.15.2 Protection Covering.

E. During curing period, protect concrete from damaging mechanical disturbances, water flow, loading, shock, and vibration.

## **PART 4 MEASUREMENT AND PAYMENT**

### 4.01 GENERAL

A. Cast-in-place concrete - street work shall be paid for at the bid price in accordance with one of the following methods, unless indicated otherwise in the Bid Form.

1. Cast-in-Place Concrete - Street Work. Unit Price. When so provided, payment for cast-in-place concrete-street work shall be made at the contract unit price bid as specified for concrete pavement, curb and gutter, concrete sidewalk, steps and driveways.
  - a. Payment for cast-in-place concrete - street work shall include all base preparation and grading as specified for concrete pavement, curb and gutter, concrete sidewalk, steps and driveways.
  - b. Payment for cast-in-place concrete - street work shall include minimum compacted thickness of base course and sub base course material as specified for pavement, concrete curb and gutter, concrete sidewalk, steps and driveways.

#### B. Measurement

1. Measurement shall be made along the edge of concrete for pavement, sidewalks, and driveways. Square feet will be calculated based on actual length and width. Irregular shaped areas will be calculated based on average length and width.
2. Lineal measurement shall be made in the flow line for curb and gutter.

C. Payment

1. Payment shall be made at the unit price per square feet or per lineal foot as indicated in the bid schedule.
2. Unit price shall include:
  - a. Removal of existing.
  - b. Foundation preparation.
  - c. Forming.
  - d. Placing and finishing concrete.
  - e. Labor, equipment and material.

D. Adjusting utility appurtenances in or adjacent to concrete pavement, curb and gutters, sidewalks, steps, driveways and retaining walls will be considered inclusive to payment for work associated with concrete pavement, curb and gutter, sidewalks, steps, and driveway construction and no additional compensation will be allowed unless indicated in the Bid Form.

E. Compressive Strength Deficiency

1. Compressive strength shall be evaluated by averaging two 28-day test results.
2. Should the average 28-day test result fall below the specified strength, the Owner may accept the deficient work in accordance with the terms of Section 00 72 00, Standard General Conditions of the Construction Contract. Payment will be made at an adjusted price as specified in the following table:

COMPRESSIVE STRENGTH BELOW SPECIFIED MINIMUM	PAYMENT FACTOR (PERCENT OF CONTRACT PRICE)
From 100 PSI to 250 PSI inclusive	90%
From 250 PSI to 500 PSI inclusive	80%
From 500 PSI to 1,000 PSI inclusive	65%

3. If the specified compressive strength deficiency is greater than 1000 PSI, the material shall be removed and replaced and, when acceptably replaced, will be paid for at the contract unit price.

F. Thickness Deficiency

1. Thickness deficiency shall be verified using cored samples. Sample locations to be determined by the Engineer.
  - a. Thickness shall be measured by averaging four (4) samples.
  - b. The unit price will be computed proportional to the average thickness of four cores as follows:

Deficiency in Thickness Determined By:	
<u>Cores in Inches</u>	<u>Percent of Unit Price Allowed</u>
0.00 to 0.125	100%
0.126 to 0.25	85%
0.251 to 0.375	70%
0.376 to 0.50	55%

- c. If the thickness deficiency is greater than 0.50 inches. The material shall be removed and replaced and when acceptably replaced, will be paid for at the contract unit price.

G. Slump deficiency

H. Slump deficiency shall be verified in the field at the time of placement.

Deficiency in Slump Determined By:

0.25" out of specification	2% price reduction
0.50" to 0.75" out of specification	5% price reduction
1.00" to 1.75" out of specification	25% price reduction
2" or more out of specification	Remove & Replace

I. Air Content Deficiency

1. Air content shall be verified in the field at the time of placement.

Deficiency in Air Content Determined By:

0.5% or more above specification	10% price reduction*
0.1% to 0.4% above specification	5% price reduction*
0.1% to 0.5% below specification	20% price reduction
0.6% to 1.0% below specification	30% price reduction
More than 1.0% below specification	Remove & Replace

~ or ~

With Engineer Approval 50% price reduction

\* If compressive strength is acceptable, do not take a price reduction for high air content. (Subject to Engineer approval)

- END OF SECTION -

# 32

**DIVISION 32**

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**EXTERIOR IMPROVEMENTS**

## SECTION 32 90 10 NATIVE LANDSCAPING

### PART 1 GENERAL

#### 1.01 SUMMARY

- A. Section Includes requirements for the following:
  - 1. Site Preparation.
  - 2. Seeding.
  - 3. Planting.
  - 4. Maintenance.
  - 5. Warranty.

#### 1.02 REFERENCES

- A. Native material references:
  - 1. Black, M.R. and E.J. Judziewicz. 2009. *Wildflowers of Wisconsin and the Great Lakes Region*. University of Wisconsin Press, Madison, WI.
  - 2. Curtis, J. 1959. *Vegetation of Wisconsin*. University of Wisconsin Press, Madison, WI.
  - 3. Fassett, N.C. 1975. *A Manual of Aquatic Plants*. University of Wisconsin Press, Madison, WI.
  - 4. Fassett, N.C. 1976. *Spring Flora of Wisconsin*. University of Wisconsin Press, Madison, WI.
  - 5. Hip, A.L. 2008. *Field Guide to Wisconsin Sedges – An Introduction to the Genus Carex (Cyperaceae)*. University of Wisconsin Press, Madison, WI.
  - 6. Kelsey, H.P, and W.A. Dayton. *Standardized Plant Names*. American Joint Committee on Horticulture Nomenclature (current edition).
- B. "State Specifications:" State of Wisconsin Department of Transportation, "Standard Specifications for Highway and Structure Construction – Sections 627,630 & 632," current edition, including any subsequent Supplemental Specifications.
- C. Wisconsin Statutes and Wisconsin Administrative Code - Chapters ATCP 20 and 29.
- D. American Association of Nurserymen, Inc. (AAN) Standard: American Standard for Nursery Stock (ANSI Z60.1).
- E. Standard Methods of the Association of Official Agricultural Chemists.

#### 1.03 SUBMITTALS

- A. Submit the following to the OWNER and ENGINEER prior to installation in accordance with Section 01 32 19, Submittals:
  - 1. Information indicating vendor, species botanical and common names, gross weight, seed purity (% PLS), harvest date, and origin. Original nursery packaging for each species must be provided 14 days after seeding activities are completed.
  - 2. Information indicating vendor, species botanical and common names, and pot size. Plant material shall comply with State of Wisconsin and federal laws with respect to inspection for plant diseases and insect infestation.
  - 3. Inspection certificates and paperwork indicating the licensed nursery, species botanical and common names, and material size within 14 days of shipment.
  - 4. Sample of erosion blanket and staples along with paperwork regarding their certification properties.
  - 5. Sample or photo of tree/shrub protector
  - 6. Chemical Labels and Herbicide Application Record(s) within 30 days after application.
  - 7. Photograph or detailed design of carp and goose fencing system.
- B. Maintenance Plan:

1. CONTRACTOR shall prepare a plan outlining native vegetation maintenance activities to be conducted by the CONTRACTOR during the warranty period. The plan shall include general procedures (i.e., fertilizing, watering, pruning); noxious and invasive species control (i.e. reed canary grass, purple loosestrife, phragmites, spotted knapweed, etc.); as well as native vegetation enhancement procedures. The plan shall be in accordance with industry standards.
2. The Maintenance Plan shall be submitted and approved by the ENGINEER prior to conducting landscape installation.

#### 1.04 QUALITY ASSURANCE

##### A. Qualifications:

1. **CONTRACTOR or Subcontractor shall be a company specializing in native landscaping installation.**
2. **Perform planting by personnel familiar with accepted native landscape planting procedures. Qualified foreman, representing CONTRACTOR or Subcontractor, shall be on-site during planting procedures. The individual shall be an ecologist with at least 5 years of native plant installation experience.**
3. **Submit qualifications requested on the qualification form with the bid. OWNER has sole authority to approve or disapprove native landscape contractor and/or subcontractor at OWNER's sole discretion.**

##### B. Ability to Deliver:

1. Investigate sources of supply and confirm they can supply plants specified on plant list in sizes, variety, and quantity noted and specified before submitting bid. Failure to take this precaution will not relieve responsibility for furnishing and installing plant material in accordance with Contract requirements.
2. Substitutions may be permitted only upon submission of written proof that specified plant is not obtainable locally. Such substitution may be made upon written authorization by qualified botanist. Adjustments will be made at no additional cost to OWNER.
3. Provide seed and plant materials discussed below in quantity and size designated.

##### C. Inspection:

1. OWNER and ENGINEER may inspect plant material at nursery. Such inspection shall be in addition to inspection at job site.
2. Upon delivery and before seeding and/or planting, OWNER and ENGINEER may inspect seed packages and plants.
3. Inspection and approval is for quality, size, and variety only, and in no way impairs right of rejection for failure to meet other requirements during progress of Work.
4. CONTRACTOR shall be present during required inspections.

##### D. Source Quality Control.

1. Certification: Landscape materials shall be from stock inspected and certified by authorized governmental agencies. Material shall comply with governmental regulations prevailing at supply source and project.
2. Plant material shall comply with State of Wisconsin and federal laws with respect to inspection for plant diseases and insect infestation.
3. Size and grading standards of plant materials shall be in accordance with American Association of Nurserymen, Inc. (AAN) Standard: American Standard for Nursery Stock (ANSI Z60.1).

##### E. VHS and INVASIVE SPECIES

1. To the extent practicable, equipment and gear used on infested waters should not be used on other non-infested waters.
2. All equipment utilized for the project including but not limited to tracked equipment, barges, boats, silt/turbidity curtains, hoses and pumps shall be decontaminated for invasive and exotic viruses and species prior to and after use. The following steps shall be taken every time equipment is moved to avoid transporting invasive and exotic viruses and species:
  - a. Inspect and remove terrestrial and aquatic plants, seeds, animals and mud from equipment.
  - b. Drain all water from equipment that comes in contact with infested waters.
  - c. Dispose of aquatic plants and animals in the trash. Never release or transfer aquatic plants, animals or water from one water body to another.

- d. Wash equipment with hot (>104 degrees F) and/or high pressure water **OR** allow your equipment to dry thoroughly for 5 days.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Preparation for Delivery:

- 1. Seed:
  - a. Pack seeds for delivery in suitable bags in accordance with standard commercial practice.
  - b. Tag or label each bag as required by laws of State of Wisconsin and Federal Seed Act. Vendor's name shall show on or be attached to each bag together with statement signed by vendor indicating following:
    - 1) Kind of seed contained.
    - 2) Percentage of purity and germination for native grass/sedge mix.
    - 3) Percentage of hard seed, if any.
    - 4) Statement conforming to laws of State of Wisconsin herein before mentioned showing percentage of weed seeds, if any.
- 2. Potted or Container Plants:
  - a. Provide container to hold rootstock protecting root mass and structure during delivery and handling.
  - b. Roots shall be developed and free from root rot.
  - c. Roots shall be kept cool and moist and out of sun and wind.
  - d. Trees and shrubs shall not be pruned prior to shipping.
  - e. Follow nursery guidelines.
  - f. Bare root plants are unacceptable unless plants are being installed during normal dormant periods (i.e., spring and fall). Where bare root stock is used, it must be delivered and handled in such a way that roots are never allowed to dry out.
- 3. Bare-root Plants:
  - a. Dig and prepare for shipment in manner that will not damage roots, branches, shape, and future development of plant.
  - b. Ensure roots are moistened and adequately covered to prevent drying. Cover root with thick coating of mud by puddling or wrap in wet straw, moss or other suitable packing material immediately after they are dug for protection until delivery and installation.
  - c. Pruning shall not occur prior to shipping.
- 4. Live Stakes:
  - a. All live stakes shall be handled in a manner that will prevent injuries to the bark and exposed ends.
  - b. Stakes shall be harvested during the dormant season prior to installation, which is defined as, "The period when woody vegetation has set buds and photosynthesis in the leaves has ceased."
  - c. Live Stakes shall be refrigerated at a temperature between 31 – 40 degrees Fahrenheit with 60-70% humidity prior to being delivered to the site unless they are harvested from a nearby site and installed within 2-3 days. Stakes shall be inspected regularly for issues such as rotting and drying.

B. Delivery:

- 1. Schedule shipping to minimize on-site storage of materials.
- 2. Notify ENGINEER 48 hours before delivery of seed and/or plant material.
- 3. Each shipment shall be accompanied by paperwork showing sizes and varieties included.
- 4. Failure to notify ENGINEER in advance, in order to arrange proper scheduling, may result in loss of time or removal of plant material not installed as specified.
- 5. Seed: Each species shall be delivered to the project site in the nursery's original, sealed packaging and labeled in accordance with Wisconsin State Law and the Federal Seed Act.
- 6. Protect seed against weather-related damage or other damages occurring during transit. Remove from site, seed that has become wet, moldy, or otherwise damaged and replace without extra cost to OWNER.
- 7. Plant Material: Take precautions in accordance with best trade practices and nursery recommendations to ensure arrival of material at Project Site in good condition and without injury. Cover plants to prevent freezing, drying, transit injury, or other exposure. During shipment, plants shall not be bent, stacked, or bound in manner that damages or destroys natural shape. Soil moisture shall be checked and material watered, if necessary.

8. Trees with damaged, crooked leader or multiple leaders, unless specifically specified, will be rejected. Trees and shrubs with abrasion of bark, sun scalds, disfiguring knots or fresh cuts of limbs over 1-1/4 in. which have not completely calloused, will be rejected.
9. Live Stakes that are crooked or have damaged bark will be rejected.

C. Temporary Storage:

1. Storage of Plant Material:
  - a. Set plants that are not to be planted within 4 hours, on ground and heal in with peat, soil, mulch or other approved media.
  - b. Protect roots of plant material from drying or other possible injury.
  - c. Water plants as necessary until planted.
  - d. Plants shall not remain unplanted for longer than 3 days.
  - e. Maintain bare-root plants in cold storage at approximately 31 – 40 degrees Fahrenheit prior to being delivered to Site.
  - f. Live Stakes purchased from a nursery or constructed by the CONTRACTOR shall be installed within 2 days of delivery or cutting. During this time, stakes shall be kept out of direct sunlight and protected from the wind. The stakes can be stored in water to prevent them from drying out; in fact, soaking the stakes in cool/cold water for 24-48 hours prior to installation with a small amount of rooting hormone will improve survivability. Stakes shall be inspected regularly for issues such as rotting and drying.
  - g. Live Stakes that are to be shipped and/or harvested by the CONTRACTOR and stored for a longer period of time must discuss storage conditions with the ENGINEER.
2. Keep seed cool, dry, and protected against weather-related damage or other damages occurring during storage so their effectiveness will not be impaired. Do not store in direct contact with ground. Replace seed that has become wet, moldy, or otherwise damaged at CONTRACTOR'S expense.
3. Store fertilizer, humus, and spray materials in weatherproof storage areas and in such manner, their effectiveness will not be impaired.

## **PART 2 PRODUCTS**

### 2.01 PLANT SPECIMENS

A. General:

1. Plant material shall be nursery grown or harvested unless otherwise specified or approved in writing by ENGINEER.
2. Unless specifically noted otherwise, plant material shall be of selected specimen quality, have normal habit of growth, and be sound, healthy, vigorous plants with well-developed root systems. Plants shall be free of disease, insect pests, their eggs or larvae, and injuries.
3. Plant/Seed information:
  - a. See Paragraphs 2.01 G. & H. for seed mix and plant quantity requirements.
  - b. It is the CONTRACTOR'S responsibility to ensure plants and/or seed are true to species and variety and conform to measurement specified in Paragraphs 2.01 G. & H., except plants larger than specified may be used if approved by ENGINEER. Use of such plants shall not result in increased Contract Price.
  - c. Where plants larger than specified have been submitted in writing for approval and approved in writing by ENGINEER, CONTRACTOR shall assume responsibility of guarantee for plant in size as planted.
  - d. OWNER & ENGINEER must approve any substitutions.
4. Tree/Shrub/Live Stake information:
  - a. See Paragraph 2.01 I. for tree, shrub, live stakes size and quantity requirements. Provide source of plant material at least 4 weeks prior to digging or harvesting.
  - b. Plants shall be freshly dug or container grown material. Plants placed in cold storage for an extended period (>1 month) of time are not acceptable unless the CONTRACTOR makes such a request in writing and the materials are inspected and approved.
  - c. Measure plants when branches are in normal position. Height and spread refer to plant's main body and not from branch tip to branch tip.
  - d. If range of size is given, no plant or stake shall be less than minimum size and not less than 50% of plants shall be as large as upper half of range specified.

- e. Measurements specified are minimum size acceptable and are measurements after pruning, where pruning is required. Plants meeting measurements specified, but not producing normal balance between height and spread, will be rejected.

B. Cover Crop

- 1. Cover Crop Seed mix for all restored areas shall be as follows:

Species	% Minimum Purity	% Minimum Germination
Annual Oats	98	90
Winter Wheat	95	90
Barnyard Grass ( <i>Echinochloa crus-galli</i> )	95	90

- 2. Seeding a cover crop by itself between April 15<sup>th</sup> & August 15<sup>th</sup> shall be conducted using Annual Oats at a rate of 120 lbs/acre.
- 3. Seeding a cover crop by itself between August 15<sup>th</sup> & November 30<sup>th</sup> shall be conducted using Winter Wheat at a rate of 90 lbs/acre.
- 4. Native seeding conducted between April 15<sup>th</sup> & June 15<sup>th</sup> shall include a cover crop of Annual Oats at a rate of 20 lbs/acre.
- 5. Native seeding conducted between October 15<sup>th</sup> & November 30<sup>th</sup> shall include a cover crop of Winter Wheat at a rate of 10 lbs/acre and Annual Oats at a rate of 20 lbs/acre.
- 6. Native wetland seeding shall also include a cover crop of Barnyard Grass at a rate of 1 lb/acre.

C. Native Seed

- 1. Seed stock shall be wild ecotype indigenous to Wisconsin or the first tier counties in those states bordering Wisconsin or have natural origins within a 250-mile radius of the intended planting site.
- 2. Grasses classified as "Agricultural Grasses" shall be PLS as specified. Other seed shall be "clean" according to high quality industry standards.
- 3. Seed shall not be more than one year old at time of seeding.
- 4. Legumes shall be inoculated with proper rhizobia immediately prior to planting (six hours or less).

D. Pot/Container Grown Plants

- 1. Wetland live plant seed stock shall be wild ecotype indigenous to Wisconsin or have natural origins within a 250-mile radius of the intended planting site. Plugs shall not be less than 2.5 x 2.5 square in. size with a depth of 3.5 in., unless bare root or smaller material is the only stock available,
- 2. Tree and shrub seed stock shall be wild ecotype indigenous to the Upper Midwest and shall have been grown within same hardiness zone as the Project Site or acclimated to conditions of same hardiness zone for a minimum of two growing seasons. Hardiness zones shall conform to "Zones of Plant Hardiness" as provided by U.S. Department of Agriculture.
- 3. Pot grown plants and select bare-root species shall have heavy fibrous root system, or well-developed tap root, developed by proper horticultural practice including transplanting and root pruning, and shall have grown in container for at least one growing season.
- 4. Root system shall have developed sufficiently long for new fibrous roots to develop so root mass will retain its shape and hold together when removed from container.
- 5. Container shall not strangle or girdle natural growth of plant. Plants, other than groundcovers, over-established in container as evidenced by pot-bound root ends will be rejected.
- 6. Bare root plants are generally unacceptable; however, exceptions may be made for species difficult to secure as potted material such as some submergent aquatic plants and floating-leaved species including water lilies. If bare root material is not specified in Paragraph 2.01 H., the CONTRACTOR must request permission, in writing, to use bare root stock.

E. Bare Root Trees & Shrubs:

- 1. Tree and shrub seed stock shall be wild ecotype indigenous to the Upper Midwest and shall have been grown within same hardiness zone as the Project Site or acclimated to conditions of same hardiness zone for a minimum of two growing seasons. Hardiness zones shall conform to "Zones of Plant Hardiness" as provided by U.S. Department of Agriculture.

2. Root Spread shall be:

Height of Plant	Minimum Spread of Root (in.)
18 - 24 in.	10
2 - 3 ft	11
3 - 4 ft	14
4 - 5 ft	16
5 - 6 ft	18
6 - 8 ft	20

F. Live Stakes

1. Stakes shall be wild ecotype indigenous to the Upper Midwest and shall have been harvested within same hardiness zone as the Project Site. Hardiness zones shall conform to "Zones of Plant Hardiness" as provided by U.S. Department of Agriculture.
2. Stake dimensions must meet the following:
  - (a) Diameter - ½-inch – 2-inch
  - (b) Length – 18-inch – 24-inch
3. The top of the stake must be cut flush and the butt end cut at a 45-degree angle.
4. All branches on the stake must be removed. They shall be trimmed close to the stem without damaging the stake.
5. Stakes shall be constructed from native species that are healthy, vigorous stock that is straight wood at least one (1) year old.

G. Wetland and Upland Seed Mix Species and Quantities:

**Prairie Planting Zone**

<b>Species</b>		
<b>Common Name</b>	<b>Scientific Name</b>	<b>Ounces Required Per Acre</b>
<i>Forbs</i>		
Nodding Onion	<i>Allium cernuum</i>	2.1
Prairie Onion	<i>Allium stellatum</i>	2.1
Leadplant	<i>Amorpha canescens</i>	2.0
Thimbleweed	<i>Anemone cylindrica</i>	0.6
Northern Thimbleweed	<i>Anemone virginiana</i>	0.6
Columbine	<i>Aquilegia canadensis</i>	0.8
Butterfly Weed	<i>Asclepias tuberosa</i>	0.9
Whorled Milkweed	<i>Asclepias verticillata</i>	1.4
Heath Aster	<i>Aster ericoides</i>	0.2
Smooth Blue Aster	<i>Aster laevis</i>	1.1
Sky Blue Aster	<i>Aster oolentangiense</i>	0.6
Lance-leaf Coreopsis	<i>Coreopsis lanceolata</i>	1.2
Purple Prairie Clover	<i>Dalea purpurea</i>	3.1
Shooting Star	<i>Dodecatheon meadia</i>	0.5
Pale Purple Coneflower	<i>Echinacea pallida</i>	4.5
Flowering Spurge	<i>Euphorbia corollata</i>	0.8
Sweet Everlasting	<i>Gnaphalium obtusifolium</i>	0.1
Prairie Alumroot	<i>Heuchera richardsonii</i>	0.1
Round-headed Bushclover	<i>Lespedeza capitata</i>	2.9
Rough Blazingstar	<i>Liatris aspera</i>	2.5
Dwarf Blazing Star	<i>Liatris cylindracea</i>	1.7
Wild Lupine	<i>Lupinus perennis</i>	3.6
Wild Bergamot	<i>Monarda fistulosa</i>	1.3
Spotted Bee Balm	<i>Monarda punctata</i>	0.9
Wild Quinine	<i>Parthenium integrifolium</i>	4.5
Foxglove Beardtongue	<i>Penstemon digitalis</i>	0.6
Hairy Beardtongue	<i>Penstemon hirsutus</i>	0.3
Prairie Cinquefoil	<i>Potentilla arguta</i>	0.4
Yellow Coneflower	<i>Ratibida pinnata</i>	2.6
Black-eyed Susan	<i>Rudbeckia hirta</i>	0.9
Brown -eyed Susan	<i>Rudbeckia triloba</i>	2.3
Prairie Blue-eyed Grass	<i>Sisyrinchium campestre</i>	1.4
Stiff Goldenrod	<i>Solidago rigida</i>	1.5
Showy Goldenrod	<i>Solidago speciosa</i>	0.8
Common Spiderwort	<i>Tradescantia ohiensis</i>	3.9
Hoary Vervain	<i>Verbena stricta</i>	3.4
Golden Alexander	<i>Zizia aurea</i>	7.1
<i>Grasses/Sedges</i>		
Side Oats Grama	<i>Bouteloua curtipendula</i>	65.3
Sand Bracted Sedge	<i>Carex muehlenbergii</i>	6.5
Purple Love Grass	<i>Eragrostis spectabilis</i>	1.4
June Grass	<i>Koeleria macrantha</i>	0.8
Little Bluestem	<i>Schizachyrium scoparium</i>	31.4
Indian Grass	<i>Sorghastrum nutans</i>	19.6
<b>TOTAL</b>		<b>190.3</b>

**Wet-Mesic/Mesic Prairie Planting Zone**

<b>Species</b>		
<b>Common Name</b>	<b>Scientific Name</b>	<b>Ounces Required Per Acre</b>
<b>Forbs</b>		
Nodding Onion	<i>Allium cernuum</i>	4.1
Columbine	<i>Aquilegia canadensis</i>	0.8
Common Milkweed	<i>Asclepias syriaca</i>	1.2
Butterfly Weed	<i>Asclepias tuberosa</i>	0.9
Smooth Blue Aster	<i>Aster laevis</i>	1.0
Calico Aster	<i>Aster lateriflorus</i>	0.3
New England Aster	<i>Aster novae-angliae</i>	1.0
Purple Prairie Clover	<i>Dalea purpurea</i>	8.4
Showy Tick Trefoil	<i>Desmodium canadense</i>	0.9
Shooting Star	<i>Dodecatheon meadia</i>	0.8
Pale Purple Coneflower	<i>Echinacea pallida</i>	9.0
Ox-eye	<i>Heliopsis helianthoides</i>	6.2
Round-headed Bushclover	<i>Lespedeza capitata</i>	6.9
Rough Blazingstar	<i>Liatris aspera</i>	4.9
Pale Spiked Lobelia	<i>Lobelia spicata</i>	0.2
Wild Bergamot	<i>Monarda fistulosa</i>	1.8
Common Mountain Mint	<i>Pycnanthemum virginianum</i>	0.4
Yellow Coneflower	<i>Ratibida pinnata</i>	2.6
Black-eyed Susan	<i>Rudbeckia hirta</i>	0.9
Brown -eyed Susan	<i>Rudbeckia triloba</i>	2.8
Compass Plant	<i>Silphium laciniatum</i>	1.2
Prairie Dock	<i>Silphium terebinthinaceum</i>	1.6
Showy Goldenrod	<i>Solidago speciosa</i>	0.6
Common Spiderwort	<i>Tradescantia ohiensis</i>	7.8
Culver's Root	<i>Veronicastrum virginicum</i>	0.1
Golden Alexander	<i>Zizia aurea</i>	7.1
<b>Grasses/Sedges</b>		
Big Bluestem	<i>Andropogon gerardii</i>	7.8
Side Oats Grama	<i>Bouteloua curtipendula</i>	65.3
Sand Bracted Sedge	<i>Carex muehlenbergii</i>	6.5
Canada Wild Rye	<i>Elymus canadensis</i>	60.3
Switch Grass	<i>Panicum virgatum</i>	5.6
Little Bluestem	<i>Schizachyrium scoparium</i>	26.1
Indian Grass	<i>Sorghastrum nutans</i>	19.6
<b>TOTAL</b>		<b>264.7</b>

## Wet-Mesic Forest Planting Zone

Species		
Common Name	Scientific Name	Ounces Required Per Acre
<i>Forbs</i>		
Canada Anemone	<i>Anemone canadensis</i>	1.8
Tall Thimbleweed	<i>Anemone virginiana</i>	1.0
Columbine	<i>Aquilegia canadensis</i>	2.9
Calico Aster	<i>Aster lateriflorus</i>	1.0
Large-leaved Aster	<i>Aster macrophyllus</i>	0.7
Common Beggar's Ticks	<i>Bidens frondosa</i>	2.9
Smallspike False Nettle	<i>Boehmeria cylindrica</i>	0.4
Wild Cucumber	<i>Echinocystis lobata</i>	3.6
White Snakeroot	<i>Eupatorium rugosum</i>	0.7
Northern Bedstraw	<i>Galium boreale</i>	1.0
Bottle Gentain	<i>Gentiana andrewsii</i>	0.5
Wild Geranium	<i>Geranium maculatum</i>	1.5
Yellow Avens	<i>Geum aleppicum</i>	7.3
Grass-leaved Goldenrod	<i>Euthamia graminifolia</i>	0.5
Saw-tooth Sunflower	<i>Helianthus grosseserratus</i>	1.9
Pale-leaved Sunflower	<i>Helianthus strumosus</i>	3.5
Spotted Touch-me-not	<i>Impatiens capensis</i>	0.9
Cardinal Flower	<i>Lobelia cardinalis</i>	0.9
Water Horehound	<i>Lycopus americanus</i>	1.7
Solomon's Plume	<i>Maianthemum racemosum</i>	4.6
Wild Mint	<i>Mentha arvensis</i>	0.5
Bishop's Cap	<i>Mitella diphylla</i>	0.4
Sweet Cicely	<i>Osmorhiza claytonii</i>	2.9
Wood Betony	<i>Pedicularis canadensis</i>	0.8
Jacob's Ladder	<i>Polemonium reptans</i>	1.0
Common Mountain Mint	<i>Pycnanthemum virginianum</i>	1.0
Wild Golden Glow	<i>Rudbeckia laciniata</i>	3.9
Mad-dog Skullcap	<i>Scutellaria lateriflora</i>	2.2
Late Goldenrod	<i>Solidago gigantea</i>	0.7
Purple Meadow Rue	<i>Thalictrum dasycarpum</i>	6.6
Culver's Root	<i>Veronicastrum virginicum</i>	0.9
Golden Alexanders	<i>Zizia aurea</i>	11.6
<i>Grasses/Sedges/Rushes</i>		
Fringed Brome	<i>Bromus ciliatus</i>	21.8
Canada Bluejoint	<i>Calamagrostis canadensis</i>	1.3
Bebb's Oval Sedge	<i>Carex bebbi</i>	4.3
Common Wood Sedge	<i>Carex blanda</i>	1.5
Plains Oval Sedge	<i>Carex brevior</i>	6.3
Fringed Sedge	<i>Carex crinita</i>	4.7
Crested Oval Sedge	<i>Carex cristatella</i>	2.7
Wood Gray Sedge	<i>Carex grisea</i>	3.0
Slender Sedge	<i>Carex leptalea</i>	1.1
Field Oval Sedge	<i>Carex molesta</i>	7.1
Long-beaked Sedge	<i>Carex sprengeii</i>	2.2
Awl-fruited Sedge	<i>Carex stipata</i>	4.6
Narrow-leaved Oval Sedge	<i>Carex tenera</i>	1.0
Brown Fox Sedge	<i>Carex vulpinoidea</i>	4.5
Canada Wild Rye	<i>Elymus canadensis</i>	51.4
Virginia Wild Rye	<i>Elymus virginicus</i>	53.0
Fowl Manna Grass	<i>Glyceria striata</i>	3.0
Dudley's Rush	<i>Juncus dudleyi</i>	0.1
Path Rush	<i>Juncus tenuis</i>	0.3
Leafy Satin Grass	<i>Muhlenbergia mexicana</i>	2.1
Upland Wild Timothy	<i>Muhlenbergia racemosa</i>	2.3
Fowl Bluegrass	<i>Poa palustris</i>	1.4
<b>TOTAL</b>		<b>251.5</b>

## Shrub-Carr Planting Zone

Species		
Common Name	Scientific Name	Ounces Required Per Acre
<i>Forbs</i>		
Canada Anemone	<i>Anemone canadensis</i>	0.9
Angelica	<i>Angelica atropurpurea</i>	4.7
Marsh Milkweed	<i>Asclepias incarnata</i>	2.7
Shining Aster*	<i>Aster firmus</i>	1.0
New England Aster	<i>Aster novae-angliae</i>	1.1
Swamp Aster	<i>Aster puniceus</i>	0.9
Flat-top Aster	<i>Aster umbellatus</i>	1.4
Nodding Bur Marigold	<i>Bidens cernua</i>	2.6
Common Beggar's Ticks	<i>Bidens frondosa</i>	2.2
Turtlehead	<i>Chelone glabra</i>	0.6
Water Hemlock	<i>Cicuta maculata</i>	0.9
Marsh Cinquefoil	<i>Comarum palustre</i>	0.3
Cinnamon Willow Herb	<i>Epilobium coloratum</i>	0.7
Joe Pye Weed	<i>Eupatorium maculatum</i>	2.3
Boneset	<i>Eupatorium perfoliatum</i>	1.1
Grass-leaved Goldenrod	<i>Euthamia graminifolia</i>	0.5
Sneezeweed	<i>Helenium autumnale</i>	1.5
Saw-tooth Sunflower	<i>Helianthus grosseserratus</i>	3.4
Spotted Touch-me-not	<i>Impatiens capensis</i>	1.4
Cardinal Flower	<i>Lobelia cardinalis</i>	0.9
Water Horehound	<i>Lycopus americanus</i>	0.8
Wild Mint	<i>Mentha arvensis</i>	0.5
Obedient Plant	<i>Physotegia virginiana</i>	0.7
Common Mountain Mint	<i>Pycnanthemum virginianum</i>	0.7
Wild Golden Glow	<i>Rudbeckia laciniata</i>	3.9
Great Water Dock	<i>Rumex orbiculatus</i>	6.1
Tall Water Parsnip	<i>Sium suave</i>	0.6
Late Goldenrod	<i>Solidago gigantea</i>	0.5
Swamp Goldenrod	<i>Solidago patula</i>	0.6
Woundwort	<i>Stachys palustris</i>	0.8
Purple Meadow Rue	<i>Thalictrum dasycarpum</i>	6.6
Blue Vervain	<i>Verbena hastata</i>	3.9
Culver's Root	<i>Veronicastrum virginicum</i>	0.4
Golden Alexanders	<i>Zizia aurea</i>	6.6
<i>Grasses/Sedges/Rushes</i>		
Fringed Brome	<i>Bromus ciliatus</i>	3.6
Canada Bluejoint	<i>Calamagrostis canadensis</i>	1.3
Water Sedge	<i>Carex aquatilis</i>	0.6
Crested Oval Sedge	<i>Carex cristatella</i>	1.2
Porcupine Sedge	<i>Carex hystericina</i>	5.2
Common Lake Sedge	<i>Carex lacustris</i>	0.8
Narrow-leaved Woolly Sedge	<i>Carex lasiocarpa</i>	1.3
Broad-leaved Woolly Sedge	<i>Carex pellita</i>	0.5
Deflexed Bottle-brush Sedge	<i>Carex retrorsa</i>	2.0
Awl-fruited Sedge	<i>Carex stipata</i>	4.6
Tussock sedge	<i>Carex stricta</i>	2.9
Common Yellow Lake Sedge	<i>Carex utriculata</i>	2.7
Great Spike Rush	<i>Eleocharis palustris</i>	0.9
Virginia Wild Rye	<i>Elymus virginicus</i>	21.2
Reed Manna Grass	<i>Glyceria grandis</i>	3.5
Fowl Manna Grass	<i>Glyceria striata</i>	2.6
Dudley's Rush	<i>Juncus dudleyi</i>	0.1
Rice Cut Grass	<i>Leersia oryzoides</i>	1.1
Fowl Bluegrass	<i>Poa palustris</i>	1.4
Dark Green Bulrush	<i>Scirpus atrovirens</i>	1.5
Wool Grass	<i>Scirpus cyperinus</i>	0.5
Rufous Bulrush	<i>Scirpus pendulus</i>	1.4
Prairie Cord Grass	<i>Spartina pectinata</i>	2.7
<b>TOTAL</b>		<b>127.4</b>

**Northern Sedge Meadow Planting Zone**

Species		Ounces Required
Common Name	Scientific Name	Per Acre
<i>Forbs</i>		
Canada Anemone	<i>Anemone canadensis</i>	0.9
Angelica	<i>Angelica atropurpurea</i>	4.7
Marsh Milkweed	<i>Asclepias incarnata</i>	2.7
Shining Aster*	<i>Aster firmus</i>	0.4
Panicled Aster	<i>Aster lanceolatus</i>	0.7
Swamp Aster	<i>Aster puniceus</i>	0.9
Flat-top Aster	<i>Aster umbellatus</i>	1.4
Nodding Bur Marigold	<i>Bidens cernua</i>	2.6
Common Beggar's Ticks	<i>Bidens frondosa</i>	2.2
Turtlehead	<i>Chelone glabra</i>	0.6
Water Hemlock	<i>Cicuta maculata</i>	0.9
Cinnamon Willow Herb	<i>Epilobium coloratum</i>	0.4
Joe Pye Weed	<i>Eupatorium maculatum</i>	2.1
Boneset	<i>Eupatorium perfoliatum</i>	1.0
Grass-leaved Goldenrod	<i>Euthamia graminifolia</i>	0.5
Sneezeweed	<i>Helenium autumnale</i>	1.5
Saw-tooth Sunflower	<i>Helianthus grosseserratus</i>	1.0
Spotted Touch-me-not	<i>Impatiens capensis</i>	1.4
Great Blue Lobelia	<i>Lobelia siphilitica</i>	0.5
Water Horehound	<i>Lycopus americanus</i>	0.8
Wild Mint	<i>Mentha arvensis</i>	0.4
Monkey Flower	<i>Mimulus ringens</i>	0.2
Pinkweed	<i>Persicaria pensylvanica</i>	1.1
Obedient Plant	<i>Physotegia virginiana</i>	0.7
Marsh Cinquefoil	<i>Potentilla palustris</i>	0.3
Common Mountain Mint	<i>Pycnanthemum virginianum</i>	0.7
Annual Buttercup	<i>Ranunculus sceleratus</i>	1.5
Wild Golden Glow	<i>Rudbeckia laciniata</i>	3.9
Tall Water Parsnip	<i>Sium suave</i>	0.6
Late Goldenrod	<i>Solidago gigantea</i>	0.3
Swamp Goldenrod	<i>Solidago patula</i>	0.6
Woundwort	<i>Stachys palustris</i>	0.8
Purple Meadow Rue	<i>Thalictrum dasycarpum</i>	2.0
Blue Vervain	<i>Verbena hastata</i>	3.1
Culver's Root	<i>Veronicastrum virginicum</i>	0.3
Golden Alexanders	<i>Zizia aurea</i>	6.6
<i>Grasses/Sedges/Rushes</i>		
Fringed Brome	<i>Bromus ciliatus</i>	3.6
Canada Bluejoint	<i>Calamagrostis canadensis</i>	1.3
Water Sedge	<i>Carex aquatilis</i>	0.6
Crested Oval Sedge	<i>Carex cristatella</i>	1.2
Porcupine Sedge	<i>Carex hystericina</i>	5.2
Common Lake Sedge	<i>Carex lacustris</i>	0.8
Broad-leaved Woolly Sedge	<i>Carex pellita</i>	0.5
Deflexed Bottle-brush Sedge	<i>Carex retrorsa</i>	2.0
Awl-fruited Sedge	<i>Carex stipata</i>	4.6
Tussock sedge	<i>Carex stricta</i>	3.4
Common Yellow Lake Sedge	<i>Carex utriculata</i>	2.7
Walter's Barnyard Grass	<i>Echinochloa walteri</i>	4.6
Great Spike Rush	<i>Eleocharis palustris</i>	0.9
Virginia Wild Rye	<i>Elymus virginicus</i>	21.2
Rattlesnake Grass	<i>Glyceria canadensis</i>	3.3
Fowl Manna Grass	<i>Glyceria striata</i>	2.8
Dudley's Rush	<i>Juncus dudleyi</i>	0.1
Common Rush	<i>Juncus effusus</i>	0.3
Rice Cut Grass	<i>Leersia oryzoides</i>	1.1
Fowl Bluegrass	<i>Poa palustris</i>	1.4
Dark Green Bulrush	<i>Scirpus atrovirens</i>	1.5
Wool Grass	<i>Scirpus cyperinus</i>	0.5
Prairie Cord Grass	<i>Spartina pectinata</i>	2.7
<b>TOTAL</b>		<b>116.6</b>

**Emergent Aquatic - Wild Rice Planting Zone**

<b>Species</b>		
<b>Common Name</b>	<b>Scientific Name</b>	<b>Pounds Required Per Acre</b>
Wild Rice	<i>Zizania aquatic</i>	<b>100</b>

H. Live Plant Species and Quantities:

**Wet-Mesic Forest Planting Zone**

<b>Species</b>			
<b>Common Name</b>	<b>Scientific Name</b>	<b>Quantity</b>	<b>Minimum Pot Size</b>
<i>Ferns</i>			
Lady Fern	<i>Athyrium felix-femina</i>	50	4.5"
Cinnamon Fern	<i>Osmunda cinnamomea</i>	100	4.5"
Interrupted Fern	<i>Osumuda claytoniana</i>	100	4.5"
Royal Fern	<i>Osnumda regalis</i>	50	4.5"
<i>Forbs</i>			
Wild Sarsaparilla	<i>Aralia nudicaulis</i>	50	4.5"
Wild Strawberry	<i>Fragaria virginiana</i>	150	2.5"
Starry False Solomon's Seal	<i>Maianthemum stellatum</i>	150	2.5"
Woodland Phlox	<i>Phlox divaricata</i>	150	2.5"
Barren Strawberry	<i>Waldsteinia fragarioides</i>	50	2.5"
<b>TOTAL</b>		<b>850</b>	

**Shrub-Carr Planting Zone**

<b>Species</b>			
<b>Common Name</b>	<b>Scientific Name</b>	<b>Quantity</b>	<b>Minimum Pot Size</b>
<i>Sedges/Grasses</i>			
Common Lake Sedge	<i>Carex lacustris</i>	100	2.5"
Tussock Sedge	<i>Carex stricta</i>	250	2.5"
Prairie Cord Grass	<i>Spartina pectinata</i>	150	2.5"
<i>Ferns</i>			
Ostrich Fern	<i>Matteuccia struthiopteris</i>	100	4.5"
Sensitive Fern	<i>Onoclea sensibilis</i>	100	4.5"
<i>Forbs</i>			
Northern Blue Flag	<i>Iris versicolor</i>	150	2.5"
Marsh Marigold	<i>Caltha palustris</i>	50	4.5"
<b>TOTAL</b>		<b>900</b>	

**Northern Sedge Meadow Planting Zone**

<b>Species</b>			
<b>Common Name</b>	<b>Scientific Name</b>	<b>Quantity</b>	<b>Minimum Pot Size</b>
<i>Sedges/Grasses</i>			
Porcupine Sedge	<i>Carex hystericina</i>	100	2.5"
Common Lake Sedge	<i>Carex lacustris</i>	100	2.5"
Tussock Sedge	<i>Carex stricta</i>	250	2.5"
Prairie Cord Grass	<i>Spartina pectinata</i>	150	2.5"
<i>Ferns</i>			
Ostrich Fern	<i>Matteuccia struthiopteris</i>	100	4.5"
Sensitive Fern	<i>Onoclea sensibilis</i>	200	4.5"
<i>Forbs</i>			
Northern Blue Flag	<i>Iris versicolor</i>	250	2.5"
Marsh Marigold	<i>Caltha palustris</i>	50	4.5"
<b>TOTAL</b>		<b>1,200</b>	

**Emergent/Floating-Leaved Aquatic Planting Zone**

<b>Species</b>		<b>Planting Depth</b>	<b>No. of Plants Required</b>
<b>Common Name</b>	<b>Scientific Name</b>		
Common Water-plantain	<i>Alisma subcordatum</i>	0-6"	150
Water-shield	<i>Brasenia schreberi</i>	6-12"	350
River Bulrush	<i>Bolboschoenus fluviatilis</i>	6-12"	550
Water Sedge	<i>Carex aquatilis</i>	0-3"	450
Bristly Sedge	<i>Carex comosa</i>	0-3"	500
Common Lake Sedge	<i>Carex lacustris</i>	0-3"	450
Great Spike Rush	<i>Eleocharis palustris</i>	0-3"	250
Reed Manna Grass	<i>Glyceria grandis</i>	0-3"	300
Northern Blue Flag	<i>Iris versicolor</i>	0-3"	550
Soft Rush	<i>Juncus effusus</i>	0-3"	325
Yellow Water-lily	<i>Nuphar advena</i>	6-12"	325
White Water-lily	<i>Nymphaea odorata</i>	6-12"	250
Pickerel Weed	<i>Pontedaria cordata</i>	0-6"	850
Common Arrowhead	<i>Sagittaria latifolia</i>	0-6"	900
Hardstem Bulrush	<i>Schoenoplectus acutus</i>	6-12"	850
Chair-maker's Rush	<i>Schoenoplectus pungens</i>	0-6"	1,150
Softstem Bulrush	<i>Schoenoplectus tabernaemontani</i>	6-12"	1,400
Common Bur-reed	<i>Sparganium eurycarpum</i>	6-12"	1,400
		<b>TOTAL</b>	<b>11,000</b>

**Submergent Aquatic Planting Zone**

<b>Species</b>		<b>Planting Depth</b>	<b>No. of Plants Required</b>
<b>Common Name</b>	<b>Scientific Name</b>		
Coontail	<i>Ceratophyllum demersum</i>	12-24"	150
Needle Rush	<i>Eleocharis acicularis</i>	12"	150
Water Smartweed	<i>Persicaria amphibia</i>	12"	150
Floating-leaf Pondweed	<i>Potamogeton natans</i>	12"	150
Long-leaved Pondweed	<i>Potamogeton nodosus</i>	12"	150
Sago Pondweed	<i>Stuckenia pectinata</i>	12-24"	150
Water Celery	<i>Vallisneria americana</i>	12-24"	150
		<b>TOTAL</b>	<b>1,050</b>

I. Tree, Shrub and Live Stake Species and Quantities:

**Wet Mesic Forest Planting Zone**

<b>Species</b>			
<b>Common Name</b>	<b>Scientific Name</b>	<b>Quantity</b>	<b>Size - Height</b>
<i>Trees</i>			
Balsam Fir	<i>Abies balsamea</i>	25	#5-7 gallon
Red Maple	<i>Acer rubrum</i>	25	2-4' bare-root
Silver Maple	<i>Acer saccharinum</i>	75	2-4' bare-root
Yellow Birch	<i>Betula alleghaniensis</i>	50	2-4' bare-root
Musclewood	<i>Carpinus caroliniana</i>	25	2-4' bare-root
Northern Hackberry	<i>Celtis occidentalis</i>	15	2-4' bare-root
Black Ash	<i>Fraxinus nigra</i>	5	#5-7 gallon
Tamarack	<i>Larix laricina</i>	25	#5-7 gallon
Black Spruce	<i>Picea mariana</i>	25	#5-7 gallon
Swamp White Oak	<i>Quercus bicolor</i>	100	2-4' bare-root
Bur Oak	<i>Quercus macrocarpa</i>	50	2-4' bare-root
Peach-leaf Willow	<i>Salix amygdaloides</i>	50	#2-5 gallon
Black Willow	<i>Salix nigra</i>	75	2-4' bare-root
White-cedar	<i>Thuja occidentalis</i>	25	#5-7 gallon
Canadian Hemlock	<i>Tsuga canadensis</i>	10	#5-7 gallon
Slippery Elm	<i>Ulmus rubra</i>	20	#2-5 gallon
<i>Shrubs</i>			
Black Chokeberry	<i>Aronia melanocarpa</i>	25	#2-5 gallon
Swamp Birch	<i>Betula pumila</i>	15	#2-5 gallon
Buttonbush	<i>Cephalanthus occidentalis</i>	10	2-4' bare-root
Alternate-leaved Dogwood	<i>Cornus alternifolia</i>	15	#5 gallon
Silky Dogwood	<i>Cornus amomum</i>	50	2-4' bare-root
Red-osier Dogwood	<i>Cornus stolonifera</i>	25	2-4' bare-root
Bush Honeysuckle	<i>Diervilla lonicera</i>	25	#1-2 gallon
Winterberry (Male & Female)	<i>Ilex verticillata</i>	10	2-4' bare-root
Fly Honeysuckle	<i>Lonicera canadensis</i>	15	#1-2 gallon
Common Ninebark	<i>Physocarpus opulifolius</i>	35	2-4' bare-root
Black Currant	<i>Ribes americanum</i>	25	#1-2 gallon
Wild Rose	<i>Rosa blanda</i>	20	#1-2 gallon
American Elder	<i>Sambucus canadensis</i>	35	2-4' bare-root
Meadow-sweet	<i>Spiraea alba</i>	10	#2-5 gallon
Lowbush Blueberry	<i>Vaccinium angustifolium</i>	15	#1-2 gallon
Nannyberry	<i>Viburnum lentago</i>	35	2-4' bare-root
American Highbush Cranberry	<i>Viburnum opulus L. subsp. trilobum</i>	35	2-4' bare-root
<b>TOTAL</b>		<b>1,000</b>	

**Shrub-Carr Planting Zone**

<b>Species</b>			
<b>Common Name</b>	<b>Scientific Name</b>	<b>Quantity</b>	<b>Size - Height</b>
<i>Shrubs</i>			
Speckled Alder	<i>Alnus rugosa</i>	15	#5 gallon
Silky Dogwood	<i>Cornus amomum</i>	20	2-4' bare-root
Red-osier Dogwood	<i>Cornus stolonifera</i>	50	2-4' bare-root
Winterberry (Male & Female)	<i>Ilex verticillata</i>	50	2-4' bare-root
Black Currant	<i>Ribes americanum</i>	25	#1-2 gallon
Meadow-sweet	<i>Spiraea alba</i>	50	#2-5 gallon
Bebb's Willow	<i>Salix bebbiana</i>	100	#1-2 gallon
Pussy Willow	<i>Salix discolor</i>	75	#2-5 gallon
American Highbush Cranberry	<i>Viburnum opulus L. subsp. trilobum</i>	15	2-4' bare-root
<b>TOTAL</b>		<b>400</b>	

## Live Stakes – Shrub-Carr Planting Zone

Species		No. of Stakes Required
Common Name	Scientific Name	
Silky Dogwood	<i>Cornus amomum</i>	100
Red-osier Dogwood	<i>Cornus stolonifera</i>	100
Bebb's Willow	<i>Salix bebbiana</i>	100
Pussy Willow	<i>Salix discolor</i>	100
<b>TOTAL</b>		<b>400</b>

### 2.02 PLANTING & PROTECTION MATERIALS

#### A. Topsoil:

1. Obtained from natural well drained areas, and be fertile, friable soil, clean of undesirable materials such as plants, weeds, roots, stalks, stones, and other debris.
2. Existing topsoil shall be salvaged as it will be placed during restoration activities.
3. Acidity range of pH 5.0 and pH 7.0 and shall contain no less than 4% organic matter as determined by loss on ignition of moisture free samples dried at 100°C.

#### B. Soil Amendments:

1. Planting to be installed in native soils.

#### C. Mulching Materials:

1. Processed Hardwood Bark:
  - a. From mixed hardwood species and free of sticks and leaves, 60% shall range between 1 and 3 in. in length; remaining 40% shall not exceed 1-1/2 in.
  - b. Maximum of 5% content by weight of shredded wood particles.
2. Mushroom Manure:
  - a. Well-rotted cattle or stable manure with admixture of 15% to 30% topsoil.
  - b. Used for commercial growing of at least one crop of mushrooms.

#### D. Water: CONTRACTOR shall make arrangements for water used for planting with appropriate water utilities. Cost of water usage is responsibility of CONTRACTOR and is incidental to contract.

1. Obtain from fresh water sources and free from injurious chemical or other toxic substances harmful to plant life. No water, which is brackish, may be used.
2. Provide hose and equipment necessary for proper watering of plant material.

#### E. Tree Wrap:

1. Trees shall not be wrapped.

#### F. Tree Protectors & Stakes:

1. Bare-root & Container Grown Plants. Products designed to eliminate herbivore damage from small rodents and protect the seedlings from wind and herbicide damage
  - a. Protectors
    - 1) Minimum 48" height
    - 2) Minimum 3" diameter
  - b. Stakes
    - 1) Minimum 30" height
    - 2) Wooden stakes shall be minimum 1"x1"
    - 3) PVC stakes shall be minimum 1/2" diameter

### 2.03 EROSION CONTROL MATERIALS

#### A. Erosion Blanket & Stakes:

1. Materials shall be completely biodegradable (Class I Urban Type A – S 75 BN & C 125 BN) and included on WisDOT PAL
2. Anchoring devices shall be a minimum of 6" in length, be completely biodegradable (Urban) and included on WisDOT PAL

### 2.04 HERBICIDE, ADJUVANT & DYES

- A. General:
1. Use only chemicals approved by and registered with the Environmental Protection Agency (EPA).
  2. Chemicals used around water shall be aquatic approved.
  3. The chemical or combination of chemicals shall be chosen based on the target species present and the desired treatment outcome.

## 2.05 GOOSE FENCING

- A. General:
1. 1.5" x 1.5" X 5.5' heavy-duty steel t-posts or equivalent.
  2. 48" green snow/safety fence.
  3. 8" Black UV stabilized cable ties to secure fencing to posts.
  4. Nylon rope, bailing twine or equivalent.

## 2.06 CARP FENCING

- A. General:
1. 1.5" x 1.5" X 5.5' heavy-duty steel t-posts or equivalent.
  2. 2" X 4" X 48" 14 gauge welded wire fence.
  3. 8" Black UV Stabilized Cable Ties to secure fencing to posts.

## **PART 3 SUPPLIERS**

### 3.01 PLANT SUPPLIERS

- A. At CONTRACTOR'S option, CONTRACTOR may contact the following companies for seed, plant, tree, and shrub supplies:

JFNew  
708 Roosevelt Road  
Walkerton, IN 46574  
(574) 586-2412

Taylor Creek Restoration Nursery  
17921 Smith Road  
P.O. Box 256  
Brodhead, WI 53520  
(608) 897-8641

Marshland Transplant Aquatic Nursery  
116 East Huron Street  
Berlin, WI 54923-2050  
1-800-AQUATIC

J&J Transplant Aquatic Nursery, LLC  
P.O. Box 227  
Wild Rose, WI 54984-0227  
1-800-622-5055

Prairie Nursery, Inc.  
P.O. Box 306  
Westfield, WI 53964  
1-800-476-9453

Prairie Moon Nursery  
32115 Prairie Lane  
Winona, MN 55987  
1-866-417-8156

Dragonfly Gardens  
491 State Highway 46  
Amery, WI  
(715) 268-7660

Hickory Road Gardens  
2041 Hickory Road  
Mosinee, WI 54455  
(715) 693-6446

Stone Silo Prairie Garden  
2325 Oak Ridge Circle  
De Pere, WI 54115  
(920) 336-1662

Agrecol, LLC  
10101 North Casey Road  
Evansville, WI 53536  
(608) 223-3571

Alpha Nurseries, Inc.  
3737 65<sup>th</sup> Street  
Holland, MI 49423  
(269) 857-7804

Outback Nursery, Inc.  
15280 110<sup>th</sup> Street South  
Hastings, MN 55033  
651) 438-2771

Reeseville Ridge Nursery  
512 South Main Street  
Reeseville, WI 53579  
(920) 927-3291

### 3.02 EROSION CONTROL SUPPLIERS

- A. At CONTRACTOR'S option, CONTRACTOR may contact following companies for erosion blanket and staple supplies:

ERO-TEX  
N94W143330 Garwin Mace Drive  
Menomonee Falls, WI 53051  
(866) 437-6839

CFM – Construction Fabrics & Materials Corp.  
2525 Peiper Road  
Cottage Grove, WI 53527  
(608) 839-8031

Brock White  
1425 South Ashland Avenue  
Green Bay, WI 54304  
(920) 432-6438

Earth & Road  
101 Skyline Drive  
Arlington, WI 53911  
(608) 635-7755

### 3.03 HERBICIDE SUPPLIERS

- A. At CONTRACTOR'S option, CONTRACTOR may contact following companies for chemical supplies:

Crop Production Services  
N125 County Highway C  
DeForest, WI 53532  
(608) 846-1100

Red River Specialties, Inc.  
7545 Haygood Road  
Shreveport, LA 71107  
(317) 440-7103

## **PART 4 EXECUTION**

### 4.01 PROJECT/SITE CONDITIONS

- A. Inspection:
1. Prior to beginning Work, CONTRACTOR shall examine and verify acceptability of Project site for conditions under which seeding and planting are to be performed. Do not proceed with Work until satisfactory conditions are present.
  2. Starting Work constitutes acceptance of conditions under which Work is to be performed. After such acceptances, CONTRACTOR shall be responsible for correcting unsatisfactory and defective Work resulting from such unsatisfactory conditions.
  3. When landscape work is executed in conjunction with construction of other work, coordinate schedule to permit execution of landscape work.

### 4.02 SEEDING

- A. Seedbed Preparation
1. Prior to seeding a cover crop or native species, the planting areas shall be prepared through the following sequence:
    - a. Enhancement Zones (Plant Community Map): A combination of selective cutting and two (2) or three (3) spot herbicide applications to address invasive species will be conducted throughout the growing season. A herbicide solution including aquatic approved chemical (glyphosate or imazapyr), surfactant or MSO, ammonium sulfate and marking dye are to be utilized for each application and shall be applied at the rates recommended on the label for the vegetation species present. The first application is expected to be completed in early July. The second and third applications are expected to be undertaken in mid to late August and late September – prior to the first hard freeze. The schedule for herbicide applications will be flexible to accommodate the weather and existing growing conditions; however, the Contractor must communicate with the City and the Engineer prior to conducting any application. Care must be taken to ensure

populations of existing or installed native plants are not killed during the process. Contractor must select appropriate means in which to apply the herbicide to ensure protection of native plant populations. Incomplete, untimely or unsuccessful herbicide treatments may result in additional treatment requirements to be conducted at the Contractor's expense. Damage or loss of native plant populations shall also be replaced at Contractor's expense.

- b. Re-Work Zones (Plant Community Map): A combination of mowing and two (2) or three (3) broadcast herbicide applications to eliminate existing vegetation will be conducted throughout the growing season. A herbicide solution including the chemical (glyphosate, imazapyr, clopyralid or clethodim – later 2 may only be utilized in non-aquatic settings), a surfactant or MSO, ammonium sulfate and marking dye are to be utilized for each application and shall be applied at the rates recommended on the label for the vegetation species present. The first application is expected to be completed in early July. The second and third applications are expected to be undertaken in mid to late August and late September – prior to the first hard freeze. The schedule for herbicide applications will be flexible to accommodate the weather and existing growing conditions; however, the Contractor must communicate with the City and the Engineer prior to conducting any application. Contractor must select appropriate means in which to apply the herbicide. Incomplete, untimely or unsuccessful herbicide treatments may result in additional treatment requirements to be conducted at the Contractor's expense.
- c. Northern Sedge Meadow, Shrub-Carr and Wet-Mesic Forest Planting Zones: Remove or spread out litter/duff build-up remaining from Phragmites and woody vegetation mowing operations. Soil must be visible in 50% of the area with the other 50% containing less than ½" debris layer. Due to wet soil conditions, care will need to be exercised by the Contractor to avoid rutting if heavy equipment is utilized. Any damages must be repaired at Contractor's expense.
- d. Wet-Mesic Forest, Mesic to Wet-Mesic Prairie and Prairie Planting Zones: following the last herbicide application and prior to sowing the native seed and cover crop, the soil shall be lightly worked to a depth of ¼" – ½" in depth with a disc and/or harrow. The topsoil shall be free of heavy clay, refuse, stumps, large roots, rocks over 2 inches in diameter, weeds, or other extraneous material which would be detrimental to good seed-to-soil contact, and therefore seed establishment. If the soil is too light and fluffy, the area shall be cultipacked to provide a firmer seedbed prior to seeding.
- e. Northern Sedge Meadow, Shrub-Carr and Wet-Mesic Prairie Enhancement Zones: Existing vegetation shall be mowed to a height of 2-3" prior to sowing the native seed and cover crop to allow good seed dispersal and soil contact.

B. Installation:

- 1. Seeding shall occur immediately after seedbed preparation. Re-work Zones shall be seeded with the native seed mixes at the PLS ounces per acre rate indicated in Paragraph 2.01 G. Enhancement Zones shall be seeded with the native seed mixes at one half the PLS ounces per acre rate indicated in Paragraph 2.01 G. Seeding shall be conducted within the designated communities (Drawings) between October 15<sup>th</sup> and November 30<sup>th</sup>.
- 2. All native seed species shall be mixed on-site prior to installation.
- 3. If the communities are hand sown, the seed shall be mixed with a carrier (e.g., sawdust, vermiculite, moist sand, etc.) to ensure even seed distribution. The one exception will be the Emergent Aquatic – Wild Rice which shall be hand sown from a watercraft suitable to adequately access the planting area. If a broadcast seeder is utilized, it shall be properly calibrated to ensure an even seed distribution is achieved within the planting area.
- 4. After the seed has been installed, the area shall be rolled to ensure good seed to soil contact.
- 5. Once seed installation is complete in the Prairie Planting Zone, erosion blanket shall be placed in those areas designated on the Drawings. Erosion blanket installation shall follow those requirements outlined in 4.08 below.

C. Seeding shall not be permitted during the following conditions unless otherwise approved:

- 1. Frozen soil or water conditions.

2. Wind speeds >10 miles per hour.
3. Temperatures less than 32 degrees Fahrenheit.
4. Temperatures greater than 90 degrees Fahrenheit.

#### 4.03 LIVE PLANTING WITH PLUGS OR BARE-ROOT MATERIAL

##### A. Preparation:

1. Prior to installing the live plants, the planting area shall be prepared through the following sequence:
  - a. Enhancement Zones (Plant Community Map): A combination of selective cutting and two (2) or three (3) spot herbicide applications to address invasive species will be conducted throughout the growing season. A herbicide solution including aquatic approved chemical (glyphosate or imazapyr), surfactant or MSO, ammonium sulfate and marking dye are to be utilized for each application and shall be applied at the rates recommended on the label for the vegetation species present. The first application is expected to be completed in early July. The second and third applications are expected to be undertaken in mid to late August and late September – prior to the first hard freeze. The schedule for herbicide applications will be flexible to accommodate the weather and existing growing conditions; however, the Contractor must communicate with the City and the Engineer prior to conducting any application. Care must be taken to ensure populations of existing or installed native plants are not killed during the process. Contractor must select appropriate means in which to apply the herbicide to ensure protection of native plant populations. Incomplete, untimely, or unsuccessful herbicide treatments may result in additional treatment requirements to be conducted at the Contractor's expense. Damage or loss of native plant populations shall also be replaced at Contractor's expense.
  - b. Re-Work Zones (Plant Community Map): A combination of mowing and two (2) or three (3) broadcast herbicide applications to eliminate existing vegetation will be conducted throughout the growing season. A herbicide solution including the chemical (glyphosate, imazapyr, clopyralid or clethodim – later 2 may only be utilized in non-aquatic settings), a surfactant or MSO, ammonium sulfate and marking dye are to be utilized for each application and shall be applied at the rates recommended on the label for the vegetation species present. The first application is expected to be completed in early July. The second and third applications are expected to be undertaken in mid to late August and late September – prior to the first hard freeze. The schedule for herbicide applications will be flexible to accommodate the weather and existing growing conditions; however, the Contractor must communicate with the City and the Engineer prior to conducting any application. Contractor must select appropriate means in which to apply the herbicide. Incomplete, untimely, or unsuccessful herbicide treatments may result in additional treatment requirements to be conducted at the Contractor's expense.
  - c. OWNER, ENGINEER and CONTRACTOR will meet on site to identify plant species locations throughout the restoration area.
  - d. Paragraph 2.01 H. indicates the native species and quantities to be planted.

##### B. Excavation for Planting:

1. Erosion blanket in the narrow Emergent Aquatic Planting Zone on the south side of the restoration site shall be cut in a manner that will allow the fabric to be folded out of the way during pit excavation and plant installation.
2. Plant pits shall be prepared by excavating a hole with either the installer's hand, tree spade, shovel or power auger to a minimum diameter of 3" for 2.5" potted material and 6" for 4.5" potted material and sufficiently deep for both potted and bare root material to allow the root collar to be at the original grade after the plant is positioned in the hole.
3. Additional directions regarding bare root plant installation from the nursery shall be followed.

##### C. Installation and Procedures:

1. Submergent and Emergent Aquatic plants shall be installed between June 15<sup>th</sup> and July 30<sup>th</sup>.
  2. Plants to be installed in the Northern Sedge Meadow, Shrub-Carr and Wet-Mesic Forest communities shall be installed between October 15<sup>th</sup> and November 30<sup>th</sup>.
  3. Submergent Aquatic plants shall be installed in water depths ranging from 24"-36" in depth.
  4. Emergent Aquatic plants shall be installed in water depths ranging from 0"-12" in depth.
  5. Submergent Aquatic plants will be planted in clusters of 175 plants per pod, which will be roughly 15' in diameter (Planting Detail). Clusters shall contain a mix of species found in Paragraph 2.01 H. and be randomly planted in "clumps" of 10 to 25 individuals on approximate one-foot centers throughout the pod.
  6. Emergent Aquatic plants shall be installed at indicated planting depths and cannot be submerged when planted. A minimum of 3" of plant material must be above the waterline, to ensure good growth and to handle flood inundations from storm events. Wetland plants will be randomly planted in "clumps" of 5 to 10 individuals on approximate two-foot centers throughout the planting zone. All species within a given "clump" shall be the same and the maximum distance between "clumps" shall be five feet.
  7. Live plants to be installed in the Northern Sedge Meadow, Shrub-Carr and Wet-Mesic Forest communities will be randomly planted in "clumps" of 5 to 10 individuals on approximate 18" centers that will be randomly scattered throughout the planting zone.
  8. Container-Grown Plants:
    - a. Carefully open and remove potted plants from containers.
    - b. Unwind and/or cut encircling roots with a sharp tool. Exceptionally long roots shall be shortened and all roots shall be guided gently downward and outward to prevent root girdling.
    - c. Place plant in center of pit making sure the root collar is flush with the existing soil surface prior to backfilling with native soil. Backfill and hand tamp until soil is at final grade. No soil shall be placed over the root collar.
    - d. If planted through erosion blanket, replace blanket to its original position making sure to secure the material with additional staples. The fabric shall not be in direct contact with the plant. Excess material shall either be removed or folded upon itself to eliminate contact.
  9. Bare-root Plants:
    - a. If nursery recommends additional means to secure the bare root material to the substrate such as using staples or weights, they shall be utilized to ensure successful establishment.
- D. Planting shall not be permitted during the following conditions unless otherwise approved:
1. Frozen soil conditions.
  2. Temperatures less than 32 degrees Fahrenheit.
  3. Temperatures greater than 90 degrees Fahrenheit.

#### 4.04 TREE & SHRUB PLANTING

- A. Preparation:
  1. OWNER, ENGINEER and CONTRACTOR will meet on site to identify plant species locations throughout the restoration area.
  2. Paragraph 2.01 I. indicates the native species and quantities to be planted.
- B. Excavation for Planting:
  1. Plant Pits:
    - a. Planting pits shall be prepared through the following sequence:
      - 1) Center the planting pits at the stake location.
      - 2) Excavate pits to a minimum diameter of 24", where feasible, and sufficiently deep to allow the root collar to be at the original grade after the bare-root and/or potted tree or shrub is positioned in the hole. Pits shall be saucer-shaped with no vertical sides.
      - 3) The pit sides shall be roughened to allow future root penetration.
      - 4) Do not install plantings where depth of soil over underground construction, obstructions or rock is insufficient to accommodate roots or where pockets in rock or impervious soil require drainage. Remove rock

or other underground construction and drain planting areas only when approved by ENGINEER. Payment for extra work shall be based on in-place volume required to provide normal requirements for plantings.

- a) Where such conditions are encountered in excavation planting areas and where stone, boulders or other obstruction cannot be broken or removed by hand methods and where trees to be planted are under overhead wires, alternate locations for planting may be designated by ENGINEER.
  - b) Where locations cannot be changed as determined by ENGINEER, submit cost required to remove obstructions to depth of not less than 6 in. below required pit depth.
  - c) Dispose of excavated material not suitable for backfilling off-site.
  - d) If drainage problems are encountered detrimental to growth of specified plant material, notify ENGINEER of conditions before proceeding with Work.
- 5) Container grown plants shall be placed on undisturbed soil. See typical planting detail – Sheet 6
  - 6) Bare-root plants shall be set on a mound of backfill material. See typical planting detail – Sheet 6.
  - 7) If holes are excavated on a slope, proper depth shall be obtained by adding or removing soil on uphill or downhill side such that root collar ends up slightly above grade 1” – 2”.
  - 8) Subsoil materials shall be kept separate from the above topsoil layer.

C. Installation Procedures:

1. Trees and shrubs will be randomly scatter planted throughout the Shrub-Carr and Wet-Mesic Forest Communities. Shrubs shall be placed in “clumps” of 3 to 5 individuals on approximate five-foot centers. Trees shall be planted no closer than ten feet apart throughout the restoration area.
2. Bare root and container-grown trees and shrubs shall be dormant planted between October 15<sup>th</sup> to November 30<sup>th</sup>.
3. Planting materials outside the above dates shall be considered unseasonable and requires approval by the ENGINEER.
4. If special conditions exist which warrant installation outside normal planting seasons, CONTRACTOR shall submit a written request to the OWNER and ENGINEER describing conditions and stating proposed variance. Approval to plant under such conditions shall in no way relieve CONTRACTOR from warranty.
5. Container-Grown Plants:
  - a. Carefully open and remove potted plants from containers.
  - b. Unwind and/or cut encircling roots with a sharp tool and then score the sides of the root ball in several locations around the perimeter. Exceptionally long roots shall be shortened and all roots shall be guided gently downward and outward to prevent root girdling.
  - c. Place plant in center of pit making sure the root collar is flush with the existing soil surface prior to backfilling with native soil. While backfill approximately 3/4 of the hole, large rocks and debris shall be removed. Large clumps of ground and sod shall be broken apart while filling the pit; and if used, shall not interfere with root growth. Ground placed in the hole shall not be compacted; rather, water shall be poured over the soil to promote natural settling around the root ball. Once settled, fill the remaining hole making sure to use salvaged topsoil to bring up to grade. Water the additional backfill to promote final settling, lightly tamp and add topsoil that meets CITY specifications, if necessary. No soil shall be placed over the root collar. Approximately 10-20 gallons of water shall be used to settle the soil and irrigate the root ball and surrounding soil during installation.
6. Bare Root Plants:
  - a. Prior to installing the trees and shrubs, their roots shall be soaked in water for several minutes, but no longer than 3 hours. Care should be taken to keep the roots from drying out during the planting process.
  - b. Place plants firmly on the mound of backfill material in the center of pit and spread the roots in a natural position within the pit while keeping the root collar flush with the existing soil surface.

- c. Cut off broken or frayed roots. Roots too long for the planting hole shall be trimmed to prevent root girdling.
- d. Place plant in center of pit making sure the root collar is flush with the existing soil surface prior to backfilling with native soil. While backfill approximately 3/4 of the hole, large rocks and debris shall be removed. Large clumps of ground and sod shall be broken apart while filling the pit; and if used, shall not interfere with root growth. Ground placed in the hole shall not be compacted; rather, water shall be poured over the soil to promote natural settling around the root ball. Once settled, fill the remaining hole making sure to use salvaged topsoil to bring up to grade. Water the additional backfill to promote final settling, lightly tamp and add topsoil that meets CITY specifications, if necessary. No soil shall be placed over the root collar. Approximately 5-10 gallons of water shall be used to settle the soil and irrigate the root ball and surrounding soil during installation.
- e. CONTRACTOR shall inspect all trees and shrubs two to five days after installation is completed and make any required adjustments or material additions.

D. Tree Protectors & Stakes:

- 1. Bare-root & Container Grown Plants.
  - a. Assemble and install loose plastic tubing around tree or shrub
  - b. Tube shall be placed flush or below the soil surface to prevent rodent access.
  - c. Protector shall be securely fastened in place with a wooden or PVC stake
  - d. Stakes shall be installed 12" into the ground to ensure stability.
  - e. Tubes shall be attached the stake with cable or wire ties at two

E. Planting shall not be permitted during the following conditions unless otherwise approved:

- 1. Saturated soil conditions.
- 2. Frozen soil conditions.
- 3. Temperatures less than 32 degrees Fahrenheit.
- 4. Temperatures greater than 90 degrees Fahrenheit.

4.05 LIVE STAKE INSTALLATION

A. Preparation:

- 1. OWNER, ENGINEER and CONTRACTOR will meet on site to determine live stake locations.
- 2. Paragraph 2.01 I. indicates the native species and quantities to be planted.

B. Installation:

- 1. Stakes shall be installed in a dormant state between October 15<sup>th</sup> and May 15<sup>th</sup>.
- 2. Stakes shall be randomly scattered throughout the Shrub-Carr Planting Community and installed on approximate three-foot centers.
- 3. A pilot hole shall be created with a suitable tool that will allow roughly ¾ of the stake (75%) to be inserted into the soil. If the soils allow, a planting hole may not be necessary and the stake can either be pushed or tapped (using a rubber mallet) into the ground to the required depth. Installing stakes via the latter method will require the CONTRACTOR to take care so the stakes are not damaged including split tops. Damaged material will be replaced at the CONTRACTOR'S expense.
- 4. Live stakes shall be installed as vertically as possible with two to five (2-5) bud scars present above ground. Additional length shall be removed.
- 5. Stakes installed in a pilot hole shall have the soil around the stake tamped and watered to eliminate air pockets.

C. Installation shall not be permitted during the following conditions unless otherwise approved:

- 1. Frozen soil conditions.
- 2. Temperatures less than 32 degrees Fahrenheit.
- 3. Temperatures greater than 90 degrees Fahrenheit.

4.06 GOOSE FENCE

A. Installation

1. Before live plants are installed, metal t-posts shall be placed at roughly ten-foot intervals around the outer perimeter (East and South sides) of the Emergent Aquatic planting zone.
2. The isolated Emergent Aquatic planting zone located in the Northwest portion of the restoration site will not require goose fencing, but it will likely require the roped, cross-hatch pattern, discussed below, to prevent geese from flying into the area.
3. Green safety/snow fence shall be attached to each post at three locations using cable ties along the length of the plantings. Fencing shall be taut to keep geese from walking into the area from land. The fence shall be four feet in height and must be installed so it is flush with the ground to prevent geese from going under.
4. Except for the narrow Emergent Aquatic Zone found along the south side of the restoration site, nylon rope or bailing twine shall be attached between the inner and outer posts in a cross-hatch pattern over the planting area. Additional posts shall be added to ensure supports are no more than 20 feet apart. The rope shall be taut and located a minimum of 36" above the water. Flagging shall be tied intermittently along the rope to provide motion and alert waterfowl to the fencing. Fencing shall be installed as the plants are installed to ensure protection of the plants throughout the entire planting process. See fencing detail – Sheet 6.

B. Maintenance

1. Goose fencing shall be maintained throughout the first full growing season.

C. Removal

1. CONTRACTOR shall not be responsible for removal of the fencing system. Fencing will be removed by the CITY or their representative.

#### 4.07 CARP BARRIER

A. Installation

1. Before live plants are installed, metal t-posts shall be placed at roughly five-foot intervals around the inner perimeter (North and West sides) of the Emergent Aquatic planting zone.
2. The isolated Emergent Aquatic planting zone located in the Northwest portion of the restoration site shall have the perimeter of the zone protected.
3. 14 gauge welded wire fence shall be attached to each post at three locations using cable ties along the length of the plantings. Fencing shall be four feet in height, taut and must be installed so it is flush with the ground to prevent carp from going under. See fencing detail per Sheet 6.
4. Fencing shall be installed as the plants are installed to ensure protection of the plants throughout the entire planting process.

B. Maintenance

1. Carp fencing shall be maintained throughout the first full growing season.

C. Removal

2. CONTRACTOR shall not be responsible for removal of the fencing system. Fencing will be removed by the CITY or their representative.

#### 4.08 EROSION CONTROL MATERIALS

A. Installation

1. The CONTRACTOR shall install the erosion blanket and stakes per manufacturer's recommendations.
2. Install Class I, Urban, Type A (S 75 BN) erosion blanket and biodegradable stakes on the prairie seeding per Sheet 10 within 72 hours after seeding.
3. Install Class I, Urban, Type A (C 125 BN) erosion blanket and biodegradable stakes in the emergent aquatic planting zone per Sheet 10 prior to installing emergent live plants.
3. Do not apply during high winds.

#### 4.09 WATERING

- A. General:
  - 1. Apply a minimum of five gallons of water to each tree, shrub, and live stake immediately after installation.
  - 2. Apply a minimum of five gallons of water to each tree, shrub, and live stake weekly for the first four (4) weeks of the growing season after installation unless  $\geq 1$ " of rainfall is received during that week.

#### 4.10 CLEAN UP AND REPAIR

- A. Remove excess and waste material daily.
- B. Upon completion of planting, remove excess soil, stones, and debris and dispose of off-site.
- C. CONTRACTOR shall be liable for any damage caused to surrounding properties as a result of negligence when conducting landscape installation. Damage to existing landscape, pavements, or other site features as result of Work shall be repaired to its original condition.

#### 4.11 PRELIMINARY ACCEPTANCE

- A. Notify ENGINEER at conclusion of planting and seeding operations so OWNER and ENGINEER can determine completion by field inspection.
- B. Completion requires:
  - 1. Seed and plant material conforms to Contract Documents with respect to quantity, quality, size, species, and location, except those items accepted or revised in the field by OWNER and ENGINEER.
  - 2. Plant material shall be established, upright, green (i.e., healthy condition), and exist in the locations as determined by the OWNER and ENGINEER.

#### 4.12 MAINTENANCE DURING WARRANTY PERIOD

- A. General:
  - 1. CONTRACTOR shall provide maintenance during the warranty period in accordance with the submitted and approved Maintenance Plan.
  - 2. Repair work necessitated by CONTRACTOR'S operations, land disturbance outside designated work areas, CONTRACTOR'S failure to perform adequate maintenance or due to CONTRACTOR'S negligence shall be performed without cost to OWNER.
  - 3. Any soil erosion resulting from inadequate cover crop or permanent seed establishment shall be corrected at the CONTRACTOR'S expense.
- B. Protection:
  - 1. CONTRACTOR is liable for damage to planted areas caused by deicing compounds, toxic substances, fertilizers, pesticides, and other materials applied by CONTRACTOR. CONTRACTOR is not liable for materials applied by others or damage caused by vandalism or acts of God.
  - 2. Protect landscape Work and materials from damage due to landscape operations, operations by other contractors and trades, and trespassers. Maintain protection until completion and acceptance.
  - 3. Protect existing property and improvements within these sites and those adjacent to OWNER'S property.
- C. Performance Standards: The below performance standards will be used to verify the success of the restored wetland and upland communities. Some of the standards will also help determine if the wetland is providing increased functional values.
  - 1. Year 1
    - a. Aerial coverage of invasive, non-native species such as giant reed grass, reed canary grass, cattail spp., purple loosestrife and spotted knapweed will not be  $>5\%$  absolute cover after one year.
    - b. After one year,  $\geq 75\%$  of the vegetative cover within the restoration site will be native species,  $<25\%$  of the cover will be invasive, non-native species.
    - c. Eighty percent of the site will be vegetated within one year.

- d. 720 of the 800 planted shrubs and live stakes within the Shrub-Carr community will be present and healthy one year after installation.
  - e. 900 of the 1,000 planted trees and shrubs within the Wet-Mesic Forest community will be present and healthy one year after installation.
  - f. The Open Water with Submergent Vegetation Community shall have a minimum of 5 native, non-invasive species present.
  - g. The Emergent Aquatic Community shall have a minimum of 15 native, non-invasive species present.
  - h. The Northern Sedge Meadow, Shrub-Carr, Wet-Mesic Forest and Mesic to Wet-Mesic Prairie Communities shall each have a minimum of 15 native, non-invasive species present.
  - i. To ensure the restored communities have natural significance, the floristic quality index (FQI) and Coefficient of Conservatism (Mean C) for each shall be  $\geq 20$  and  $\geq 3.5$ , respectively, after one year. FQI values will be calculated utilizing all species present: non-native species will be assigned a value of zero.
2. Year 2
- a. Aerial coverage of invasive, non-native species such as giant reed grass, reed canary grass, cattail spp., purple loosestrife and spotted knapweed will not be >5% absolute cover after two years.
  - b. After two years,  $\geq 80\%$  of the vegetative cover within the restoration site will be native species, <25% of the cover will be invasive, non-native species.
  - c. Eighty five percent of the site will be vegetated within two years.
  - d. 640 of the 800 planted shrubs and live stakes within the Shrub-Carr community will be present and healthy two years after installation.
  - e. 800 of the 1,000 planted trees and shrubs within the Wet-Mesic Forest community will be present and healthy two years after installation.
  - f. The Open Water with Submergent Vegetation Community shall have a minimum of 5 native species present.
  - g. The Emergent Aquatic Community shall have a minimum of 15 native species present.
  - h. The Northern Sedge Meadow, Shrub-Carr, Wet-Mesic Forest and Mesic to Wet-Mesic Prairie Communities shall each have a minimum of 15 native species present.
  - i. To ensure the restored communities have natural significance, the floristic quality index (FQI) and Coefficient of Conservatism (Mean C) for each shall be  $\geq 22$  and  $\geq 3.8$ , respectively, after two years. FQI values will be calculated utilizing all species present: non-native species will be assigned a value of zero.
3. Year 3.
- a. Aerial coverage of invasive, non-native species such as giant reed grass, reed canary grass, cattail spp., purple loosestrife and spotted knapweed will not be >5% absolute cover after three years.
  - b. After three years,  $\geq 85\%$  of the vegetative cover within the restoration site will be native, non-invasive species, <15% of the cover will be invasive, non-native species.
  - c. Ninety percent of the site will be vegetated within three years.
  - d. 600 of the 800 planted shrubs and live stakes within the Shrub-Carr community will be present and healthy three years after installation.
  - e. 750 of the 1,000 planted trees and shrubs within the Wet-Mesic Forest community will be present and healthy three years after installation.
  - f. The Open Water with Submergent Vegetation Community shall have a minimum of 5 native, non-invasive species present.
  - g. The Emergent Aquatic Community shall have a minimum of 15 native, non-invasive species present.
  - h. The Northern Sedge Meadow, Shrub-Carr, Wet-Mesic Forest and Mesic to Wet-Mesic Prairie Communities shall each have a minimum of 20 native, non-invasive species present.

- i. To ensure the restored communities have natural significance, the floristic quality index (FQI) and Coefficient of Conservatism (Mean C) for each shall be  $\geq 25$  and  $\geq 4.0$ , respectively, after three years. FQI values will be calculated utilizing all species present: non-native species will be assigned a value of zero.
- j. Six of the twelve nesting and roosting boxes shall be utilized or occupied annually by year three.
- k. Twenty avian species, five species of reptiles and amphibians, and five mammal species will be recorded, either through direct observation, calls or sign left by the species, utilizing the site after three years.

#### 4.13 WARRANTY

- A. During the 1-year warranty period, CONTRACTOR shall re-seed areas with poor germination and replace diseased, unhealthy, and dying plants to meet the following criteria:
  - 1. Seeding success criteria – An area will be considered satisfactory if it meet the following:
    - a. A minimum of 75% total native vegetative coverage.
    - b. No bare areas larger than 10 square feet.
    - c. Vegetation is in healthy condition.
  - 2. 90% of the installed plants, shrubs, trees, and live stakes are living and healthy.
- B. Replacement and Damages:
  - 1. Prior to expiration of the 1-year warranty period, follow-up inspection will be made to determine replacements required to be made by CONTRACTOR in accordance with provisions of these Specifications. ENGINEER will document findings in field report, and forward copies to CONTRACTOR. Items identified for replacement will be tagged during inspection with plastic flagging. Decision of OWNER and ENGINEER for required replacements is final and binding upon CONTRACTOR.
  - 2. CONTRACTOR is responsible for repairing damage to property caused by defective workmanship and materials.
- C. Exclusions:
  - 1. CONTRACTOR is not liable for replacement cost of seeds and plants damaged by extreme weather conditions. CONTRACTOR is not liable for plants not installed by CONTRACTOR under CONTRACTOR'S supervision, by relocation or removal by others, by acts of God, or by vandalism, and losses because of curtailment of water by local authorities.

#### 4.14 REPLACEMENTS

- A. General Procedure
  - 1. Reseeding and replanting shall be performed at the CONTRACTOR'S expense and in conformance with the original seeding and planting specifications unless they are modified by the ENGINEER.
  - 2. Seed and plant replacements shall be of the same species, quality, and size as originally installed, or with substitutes pre-approved in writing by the ENGINEER.
  - 3. Replanting and reseeding activities shall be conducted during the first available period, as determined by the OWNER and ENGINEER.
  - 4. Dispose of dead plants off-site.
  - 5. Restore areas damaged by replacement operations to original condition.
  - 6. Notify OWNER and ENGINEER at conclusion of replacement program
  - 7. OWNER and ENGINEER will conduct inspection of replacements for determining final acceptance.
- B. Plant Material
  - 1. Replace plants that have failed to flourish so their usefulness or appearance has been impaired. Missing or displaced plants along with those that have died, are in dying condition, or are stressed (e.g., yellowed, wilted, etc.) shall be replaced per OWNER recommendations.
  - 2. Replace trees and shrubs with dead main leader or crown which is 25% or more dead.
  - 3. Replace live stakes with no vegetative growth.

#### 4.15 FINAL ACCEPTANCE

##### A. Procedure

1. Upon completion of replacement program, CONTRACTOR shall notify OWNER and ENGINEER.
2. OWNER and ENGINEER will inspect the site to determine acceptability of required replacements.
3. If acceptable and the warranty criteria outlined in 4.13.A.1.&2. are met, OWNER and ENGINEER shall notify CONTRACTOR, in writing, of final acceptance of Work.
4. After acceptance, OWNER will be responsible for all future replacements and maintenance.

#### 4.15 MEASUREMENT AND PAYMENT

##### A. Include cost of:

1. Site preparation activities including spot & broadcast herbicide applications, mowing, debris removal, and soil preparation.
2. Providing and installing seed mixtures.
3. Providing and installing plants, shrubs, trees, and live stakes.
4. Storage of plant material.
5. Replacement of plants under warranty period.
6. All labor, materials and equipment necessary for planting and maintenance during establishment of native vegetation.
7. Cleanup.
8. Maintenance Plan.
9. Other appurtenant and incidental Work.

##### B. Do not include cost of:

1. Work included in other Bid items.

##### C. Measurement for Payment:

1. Work under this section shall be paid for at the contract unit price.

- END OF SECTION -

## SECTION 32 95 00

### HABITAT STRUCTURES

#### **PART 1 -GENERAL**

##### 1.01 SUMMARY

- A. Work Included: This section includes the following:
1. Sunken Log Structures.
  2. Half Log Structures.
  3. Fish Stick Structures.
  4. Forster's Tern Nesting Platform Structures.
  5. Brush Pile Structures.
  6. Rock Pile Structures.
  7. Log Structures.
  8. Bird House Structures.
  9. Bat House Structures.
- B. Related Sections and Divisions:
1. Applicable provisions of the General Conditions shall govern work in this section.
  2. Section 01 32 19, Submittals.
  3. Section 03 33 03, Cast in Place Concrete – Street Work Pavement, Curb and Gutter, Sidewalk, and Driveway.

##### 1.02 REFERENCES

- A. Wisconsin Administrative Codes NR 103, NR 323, and NR 353
- B. American Society for Testing and Materials (ASTM).

##### 1.03 SUBMITTALS

- A. Submit the following in accordance with Section 01 32 19, Submittals:
1. The contractor shall submit certifications for all products incorporated in each habitat structure device stating compliance with the specification.

#### **PART 2 - PRODUCTS**

##### 2.01 SUNKEN LOG STRUCTURES

- A. Logs salvaged from 2014 harbor dredging project. Logs are located at MJB yard, W1509 W Cleveland Avenue, Marinette, WI. Logs shall be varying lengths from 10-20 feet and a diameter of 8-16 inches.
- B. Concrete Log Ends shall conform to section 03 33 03, Concrete Class C specifications and section 03 21 00, Concrete Reinforcement.
- C. Minimum 3/8 inch diameter galvanized steel cable and clamps meeting ASTM Current standards.

## 2.02 HALF LOG STRUCTURES

- A. Logs salvaged from 2014 harbor dredging project. Logs are located at MJB yard, W1509 W Cleveland Avenue, Marinette, WI. Logs shall be 16-20 inches in diameter and shall be cut in half with a cut length of 6-8 feet.
- B. Minimum No. 4 coated bent bars and fasteners are required.
- C. Minimum 3/8 inch diameter galvanized steel cable and clamps meeting ASTM Current standards.

## 2.03 FISH STICKS

- A. Trees shall be hardwood species that range from 40-70 feet in height with a minimum diameter of 8 inch. Trees shall have intact tops with multiple branches to provide underwater structure and cover. Trees will be freshly harvested no more than four weeks prior to installation from an off-set location and transported to the restoration site for placement.
- B. Minimum 3/8 inch diameter galvanized steel cable and clamps meeting ASTM Current standards.
- C. Galvanized 3 inch diameter galvanized steel pipes in 10-12 feet in length and fastener bracket shall meet all ASTM Current Standards.

## 2.04 FOSTER'S TERN NESTING PLATFORM

- A. All lumber used in construction of this platform shall be cedar.
- B. Styrofoam shall be 3/4 inch Extruded Polystyrene insulation.
- C. Chick Shelter and Chick ramps shall be constructed with a hardware cloth or approved equal.

## 2.05 BRUSH PILES

- A. Logs salvaged from 2014 harbor dredging project. Logs are located at MJB yard, W1509W Cleveland Avenue, Marinette, WI. Logs shall be 6-8 inches in diameter and shall be cut in a length of 6-8 feet.
- B. Minimum 3/8 inch diameter galvanized steel cable and clamps meeting ASTM Current standards.
- C. Duckbill earth anchor shall be a 3-inch anodized aluminum anchor, 1/8-inch galvanized cable that is 5 feet in length and galvanized cable clamps or equal shall be used.
- D. Imported material from an off-site location must be "disease-free" materials.

## 2.06 ROCK PILES

- A. Rounded unbroken field stone in diameter of 6-36 inch obtained from a nearby source.

## 2.07 LOGS

- A. Logs salvaged from 2014 harbor dredging project. Logs are located at MJB yard, W1509 W Cleveland Avenue, Marinette, WI. Logs shall be 8-16 inches in diameter and shall be cut in a length of 10-20 feet.
- B. Duckbill earth anchor shall be a 3-inch anodized aluminum anchor, 1/8-inch galvanized cable that is 5 feet in length and galvanized cable clamps or equal shall be used.

## 2.08 BIRD HOUSES

- A. Tree Swallow/Eastern Bluebird
  - 1. Nesting box shall be mounted 5-6 feet above the ground on 3/4-inch Rigid Metal Conduit (RMC) made of stainless steel.
  - 2. Stainless steel 3/4-inch conduit 2-hole straps or equal shall be used.
  - 3. Approved suppliers if chosen to purchase premade structure:
    - a. Midwest Prairies  
10651 N. Charley Bluff Rd  
Milton, WI 53563  
608-868-3169
    - b. Fred Craig  
608 526-2221  
fm266@centurytel.net
- B. Purple Martin
  - 1. The Troyer 14 house (Model T-14) shall be the design utilized and components of the set-up shall include:
- C. House
  - 2. 14 compartment (6-inch (h) x 6.5-inch (w) x 11-inch (l)) house consisting of four sections (two 4-unit, two 3-unit) made from 3/4-inch cedar
  - 3. All necessary assembly hardware
  - 4. A plastic roof cap
  - 5. A wooden perch tower
  - 6. Two 3-foot perch rods
  - 7. T-14 Martin House wooden nest trays for each compartment. Trays shall be filled with a handful of dry, white pine needles and a handful pine wood chip bedding
  - 8. Openings shall be crescent shaped
  - 9. Outside of house shall be painted white
- D. Pole
  - 1. Two-piece square pole constructed of 1/8-inch thick T6 Temper aluminum that is 16-foot installed
  - 2. Ground stake/anchor
  - 3. T-14 mounting Kit for metal pole. The kit includes a brake winch, 34 feet of 3/16-inch steel cable, a pulley assembly, cable clamps, tarpaulin hook, lag bolts to secure the winch to the pole, a 6-inch safety bolt, plus a winch padlock and chain
  - 4. Break winch with removable handle
  - 5. Quick release predator pole guard. The 8-inch diameter, 23-1/2-inch long aluminum guard features a unique piano hinge and latch system

6. If contractor prefers to build the house, T-14 House Plans can be purchased from either the Purple Martin Conservation Association or the Purple Martin Society. If constructed, house shall be constructed per manufacturer's instructions and the metal pole and associated components will need to be purchased, assembled, and installed per manufacturer's recommendations. These items along with the Troyer 14 House can be purchased from the two Purple Martin organizations. All components can also be purchased at Purple Martins-R-Us.com.

Purple Martin Conservation Association  
301 Peninsula Dr., Suite 6  
Erie, PA 16505  
(814) 833-7656  
productinfo@purplemartin.org

Purple Martin Society  
(815) 744-9958  
<http://www.purplemartins.com/sales/troyersales>

Places to purchase components:

Purple Martins-R-Us  
7641 Apache blvd.  
Loxahatchee, FL 33470  
(561) 315-0408  
<http://purplemartins-r-us.com/purple-martin-housing-supplies-c-38.html>

C. Eastern Screech Owl

1. 2-3-inch of wood chips shall be placed in the box
2. Nesting box shall be placed at least 10 feet above the ground on a Schedule 40 Galvanized Steel Pole with an inside diameter of > 2-inch. The pole shall be > 13 feet in length. A standard mounting bracket such as the one sold by Lone Star Woodcraft or equal may be utilized; however, the bracket shall be made flush with the box edges when complete. Otherwise, the contractor shall follow the instructions found at the following website:  
<http://www.batcon.org/pdfs/bathouses/InstallingYourBatHouseWoodenPostSteel%20Pole.pdf>. Although the instructions are for the installation of a bat house, the procedure for installing a house on a steel pole can be applied. The steps for installing the steel pole can also be found here.
3. If contractor prefers to purchase the houses, wooden houses can be purchased from the following companies:

Midwest Prairies  
10651 N. Charley Bluff Rd  
Milton, WI 53563  
608-868-3169

P&S Country Crafts, LLC  
1441 Peaked Hill Road  
Bristol, NH 03222  
(603) 744-2265

D. Wood Duck

1. 4-inch of wood shavings or a mix of shavings and wood chips shall be placed in the nest box
2. Nesting box shall be mounted 6 feet above the ground on a Schedule 40 Galvanized Steel Pole with an inside diameter of > 2-inch. The pole shall be 8 feet in length.
3. A standard mounting bracket such as the one sold by Lone Star Woodcraft or equal may be utilized; however, the bracket shall be made flush with the box edges when complete. Otherwise, the contractor shall follow instructions at the following website: <http://www.batcon.org/pdfs/bathouses/InstallingYourBatHouseWoodenPostSteel%20Pole.pdf>. Although the instructions are for the installation of a bat house, the procedure for installing a house on a steel pole can be applied.
4. If contractor prefers to purchase the houses, wooden houses can be purchased from the following groups or companies:

Midwest Prairies  
10651 N. Charley Bluff Rd  
Milton, WI 53563  
608-868-3169

Minnesota Waterfowl Association  
907 First St. North  
Hopkins, MN 55343  
952-767-0320  
<http://www.mnwaterfowl.com/page/show/339127-minnesota-waterfowl-association>

E. Great Blue Heron

1. Pole used to mount nests shall be 30' cedar pole with a bottom diameter of 8-10 inch. The pole shall be installed 6-8 feet into the ground to ensure stability.
2. Three nesting platforms shall be attached to each pole. The first platform shall be constructed two feet (2') from the top. The platforms shall be spaced 4 feet apart and staggered at 180-degree intervals.
3. A handful of sticks (½-inch to ¾-inch in diameter) shall be wired to the nesting platform to encourage nesting

F. Osprey

1. Pole used to mount nest shall be 30-foot cedar pole with a bottom diameter of 8-10 inch. The pole shall be installed 6-8 feet into the ground to ensure stability.
2. A handful of sticks (½-inch to ¾-inch in diameter) shall be wired to the nesting platform to encourage nesting

2.09 BAT HOUSES

A. All lumber used in construction of this house shall be cedar.

1. If contractor prefers to purchase the houses, a certified Bat Conservation International (BCI) 3 or 4 chamber wooden house can be purchased from the following companies:

Best Bat Houses  
Oregon, WI 53575  
(608) 513-9497

sales@bestbathhouses.com  
<http://www.bestbathhouses.com/>

Lone Star Woodcraft  
210-885-0811  
info@lonestarwoodcraft.com  
<http://www.lonestarwoodcraft.com/bathouse.html>

Habitat for Bats  
2258 Highway 16 E  
Jackson, GA 30233  
770-500-2851  
<http://www.habitatforbats.org/estore/>

P&S Country Crafts, LLC  
1441 Peaked Hill Road  
Bristol, NH 03222  
(603) 744-2265  
<http://www.pscountrycrafts.com/shop/products.php?cat=8>

- B. Constructed houses shall be secured to buildings using two 2-inch stainless steel screws.
1. Purchased houses shall be installed per manufacturer's instructions or those found at <http://www.batcon.org/pdfs/bathhouses/InstallingYourBatHousebuilding.pdf>
  2. Constructed and purchased houses not placed on buildings shall be secured to a Schedule 40 Galvanized Steel Pole with an inside diameter of > 2-inch. The pole shall be > 16 feet in length. Pole installation can also be found at the above web address. Two houses shall be placed back-to-back on each pole; therefore, a double mounting bracket shall be utilized. Brackets can be purchased from Lone Star Woodcraft.

### **PART 3 – EXECUTION**

#### **3.01 SUNKEN LOG STRUCTURES**

- A. Place sunken log structures in the deep water portions 7-11 feet of the open water community. A series of 3 logs of varying lengths (10-20 feet) and diameter of (8-16 inches) shall be cabled together and concrete end treatments installed per plan detail in a crisscross fashion and dropped through the water column. The concrete cast shall be one-foot thick around the entire timber and a minimum of 2 feet of the log's end shall be covered. Installation of the log structures can be done during the summer of 2015 after July 1st, unless cleared by the WDNR to do so earlier, by pulling them off a barge into position or they may be placed on the ice during the winter of 2015-2016, if conditions permit, and allowed to sink in the spring during ice melt.

#### **3.02 HALF LOG STRUCTURES**

- A. Four half log structures will be placed within 100 feet of the shoreline at a water depth of approximately 2-4 feet. Timbers having a diameter of 16-20 inches shall be cut into 6-8 foot lengths and then then cut in half lengthways, resulting in a finished product with a flat bottom and rounded top. To create space between the structure and harbor bottom, two concrete cinder blocks < 12-inch in height will be used attached as spacers. Two six foot reinforced rods will be used to anchor the blocks to each log and secure the structure into the sediment (Appendix F – Half Log Detail). Installation of the half log structures can be done during the summer of 2015

after July 1st, unless cleared by the WDNR to do so earlier. Lime shall be incorporated into the top 3 inches of the soil with suitable tillage equipment.

### 3.03 FISH STICK STRUCTURES

- A. Trees to be utilized for these structures shall be hardwood species such as oak that range from 40-70 feet in height with a minimum diameter of 8-inch. Trees shall have intact tops with multiple branches to provide underwater structure and cover. Trees will be freshly harvested no more than four weeks prior to installation from an off-site location and transported to the restoration site for placement. Five groupings with three to four trees per group will be placed along the shoreline on the south side of the open water community. The groups will be spaced approximately 50 feet apart with final placement based on site conditions. Trees shall be placed near shore with their trunks emerging approximately 10-15 feet from the water and resting on the shoreline. Tops shall extend into the adjacent shallow water up to depths of roughly three feet. Trees shall be anchored to 3-inch diameter galvanized steel pipes located on shore. Because of safety concerns with recreational users in the areas, the 10-12 feet steel piping will be driven subsurface so the top of the pipe is approximately one foot below ground and covered. Prior to setting the pipe, each one will be drilled to allow 3/8-inch galvanized steel cables to be attached with cable clamps. Once the pipes have been set, cables from the pipes will be attached to the trees. Two pipes will be used per grouping of trees; and, each pipe will be attached to two separate tree trunks within the group. Each tree grouping will be secured together around each trunk with a minimum 3/8-inch galvanized cable and cable clamps. Installation of the fish sticks can be done during the summer of 2015 after July 1st, unless cleared by the WDNR to do so earlier, by putting them into position with heavy equipment.

### 3.04 FORSTER'S TERN NESTING PLATFORM STRUCTURES

- A. A group of ten pre-constructed nest platforms will be placed in a portion of the open water community that was recently composed of emergent vegetation. Water depths will range from 1-2 feet in depth. Constructed platforms shall be filled with wet, decomposing marsh vegetation, which can be gathered from the restoration site. The cattail leaves required to create a shaded corner on the platform for tern chicks can also be collected on-site. When the platforms are placed in the water, the 1/4-inch polypropylene anchor rope installed during construction, which shall be approximately four feet in length, will be attached to a brick to keep the nests from floating away, but allow for a potential rise in water. Platforms may be placed as early as June 1st, but tern nesting will have likely already begun. Their presence in 2015 will expose potential future occupants to their presence.

### 3.05 BRUSH PILE STRUCTURES

- A. During the winter of 2014 a tree top was placed at this location and has remained. The existing top shall be used as the base for beginning construction of the brush pile. To help ensure the structure remains in place, three 6-8' long logs with a diameter of 6-8-inch shall be placed on the top with one end resting on the existing treetop. If available, logs salvaged during the dredging operation shall also be utilized to construct these structures. Three logs shall be secured to the treetop with a minimum 3/8-inch galvanized cable and cable clamps. The opposite ends of the 3 logs shall then be secured with "duckbill" earth anchors, one for each log. Anchors shall be driven a minimum of 3 feet into the substrate. The opposite end shall then be cabled to the log. At a minimum, the anchoring system shall be composed of a 3-inch anodized aluminum anchor, 1/8-inch galvanized cable that is 5 feet in length and galvanized cable clamps to secure the system to the logs. Once the base is secure, limbs and sticks found throughout the restoration

site shall be woven and piled on the logs and top to create the pile. Tops from trees to be removed from the south shore should provide adequate material; however, if enough debris is not available, the Contractor shall find an off-site location. The City of Marinette's composting site may provide the necessary material. When complete, the pile shall be 12-15 feet in diameter and roughly five feet in height, resulting in approximately three feet above the existing waterline. Due to site conditions, materials will need to either be brought in and placed by hand or placed by equipment from a boat or barge to ensure minimal damage to the remaining restoration area. Installation of the brush pile can be done during the summer of 2015 after July 1st, unless cleared by the WDNR to do so earlier.

### 3.06 ROCK PILE

- A. Rounded fieldstone ranging in size from 6-36 inch shall be placed in a manner that creates an interlocking, stable mound. The base shall be roughly 10 feet wide with the top extending a minimum of three feet above the waterline. One side of the pile shall have a shelf near the water line. Due to site conditions, rocks will need to either be brought in and placed by hand or placed by equipment from a barge to ensure minimal damage to the remaining restoration area. Installation of the rocks can be done during the summer of 2015 after July 1st, unless cleared by the WDNR to do so earlier.

### 3.07 LOG STRUCTURE

- A. Logs salvaged during the 2014 dredging operations shall be utilized. The number of logs to be installed at each location will depend on availability once the log structures are constructed for the Open Water Community. One or two wooden timbers of varying lengths (10-20 feet) and diameter (8-16-inch) shall be installed so that approximately one-half of the log is above water. To help ensure the structures remain in place, they shall be anchored similar to the logs used to construct the in-water brush pile. Each end of the logs shall be secured with "duckbill" earth anchors, two per log. Anchors shall be driven a minimum of 3 feet into the substrate. The opposite end shall then be cabled to the log. At a minimum, the anchoring system shall be composed of a 3-inch anodized aluminum anchor, 1/8-inch galvanized cable that is 5 feet in length and galvanized cable clamps to secure the system to the logs. Due to site conditions, materials will need to either be brought in and placed by hand or placed by equipment from a boat or barge to ensure minimal damage to the remaining restoration area. Installation of the logs can be done during the summer of 2015 after July 1st, unless cleared by the WDNR to do so earlier.

### 3.08 BIRD HOUSES

- A. Once constructed or purchased, the following instructions shall be followed for placement and installation:
  - 1. Tree Swallow/Eastern Bluebird
    - a. Entrance hole shall be placed so it is facing east
    - b. Nesting box shall be mounted 5-6 feet above the ground on 3/4-inch Rigid Metal Conduit (RMC) made of stainless steel.
    - c. Instructions for mounting the box on the RMC are as follows:
    - d. Remove and recycle 2 feet of a standard 10-foot section of 3/4-inch RMC
    - e. Using a post pounder, drive 2 feet of the RMC into the ground so 6 feet is left above ground
    - f. Loosely attach stainless steel 3/4-inch conduit 2-hole straps to the back of the nesting box with 3/4-inch stainless steel deck screws. The top strap shall be



- c. A handful of sticks (1/2-inch to 3/4-inch in diameter) shall be wired to the nesting platform to encourage nesting.
6. Osprey
    - a. Pole used to mount nest shall be 30' cedar pole with a bottom diameter of 8-10 inch. The pole shall be installed 6-8 feet into the ground to ensure stability.
    - b. A handful of sticks (1/2-inch to 3/4-inch in diameter) shall be wired to the nesting platform to encourage nesting

### 3.09 BAT HOUSES

- A. Houses shall be placed so they are:
  1. 12-20 feet above the ground on either a building or pole with predator guard. Buildings with metal siding shall be avoided.
  2. Facing East or South.
  3. Receiving a minimum of 6-8 hours of sun exposure per day.
  4. Protected from the wind.
  5. Greater than 25 feet from a potential predator perch such as tree limbs or utility lines.
  6. Not near bright lights such as street, security or porch lighting.
  7. Situated away from windows and doors.
- B. Houses shall be painted black.
- C. Constructed houses shall be secured to buildings using two 2-inch stainless steel screws. Screws shall be centered and installed in the exposed board above the roof and below the chamber openings.
- D. Constructed and purchased houses not placed on buildings shall be secured to a Schedule 40 Galvanized Steel Pole with an inside diameter of > 2-inch. The pole shall be > 16 feet in length. Pole installation can also be found at the above web address. Two houses shall be placed back-to-back on each pole; therefore, a double mounting bracket shall be utilized. Brackets can be purchased from Lone Star Woodcraft.

### 3.10 MEASUREMENT AND PAYMENT

- A. Work under this section shall be paid for as indicated in Section 00 41 13, Bid Form.

- END OF SECTION -

## **LABELED TAB – DRAWINGS**

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**\*Place labeled tab BEFORE Drawing Division divider page**

# **DRAWING DIVISION**

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## **DRAWINGS**

**All drawings, which have been prepared on behalf of the Owner, are bound in this section and are hereby made part of this contract.**

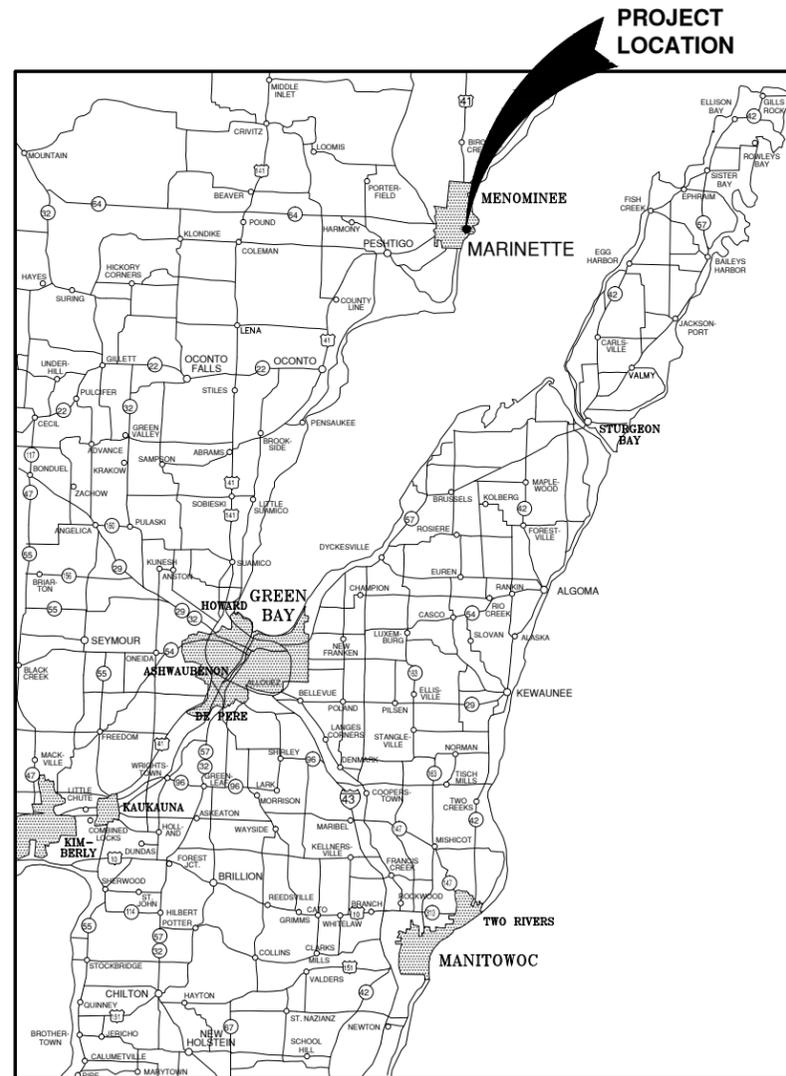
# MENKAUNEE HARBOR RESTORATION PROJECT

## CITY OF MARINETTE

### MARINETTE COUNTY, WISCONSIN

CONTRACT NO. 3775-15-01

ATTENTION!  
DOWNLOADED PLANS ARE NOT SCALEABLE, NEITHER THE OWNER OR THE ENGINEER SHALL BE HELD RESPONSIBLE FOR THE SCALE OR PRINT QUALITY OF DOWNLOADED PLANS. ONLY PRINTED PLANS FROM BLUE PRINT SERVICE CO., INC. SHALL BE CONSIDERED TO BE SCALEABLE PLANS.



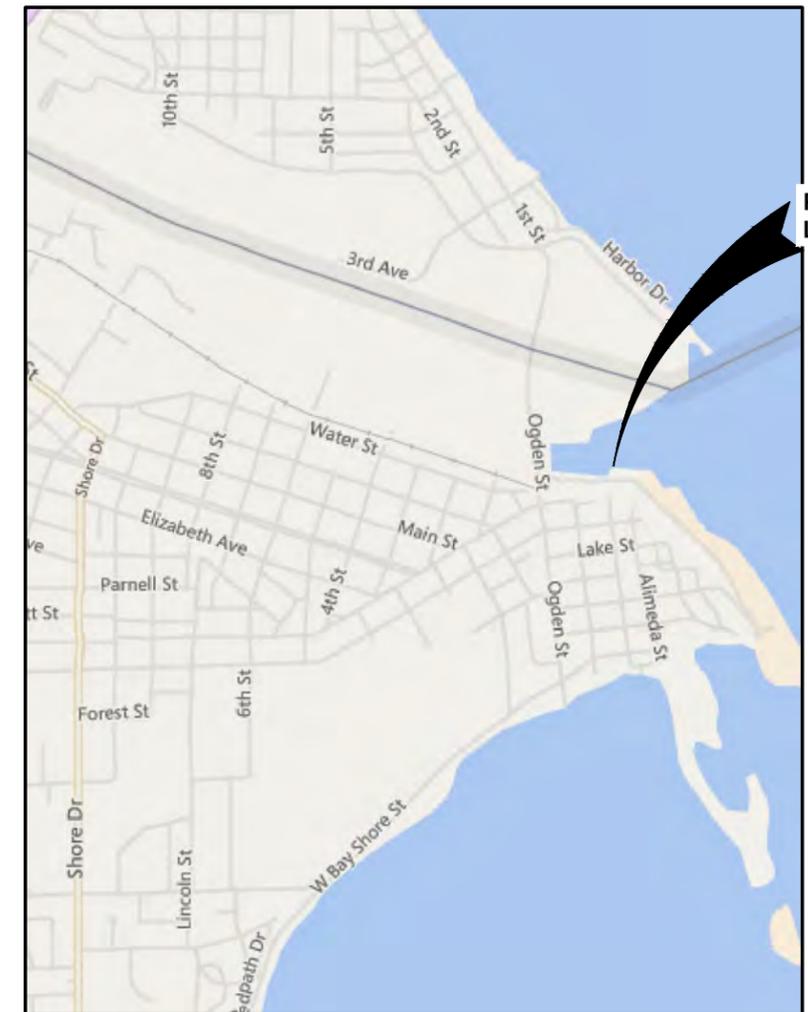
VICINITY MAP

NOTE:  
EXISTING UTILITIES SHOWN ON PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING EXACT LOCATIONS AND ELEVATIONS OF ALL UTILITIES, WHETHER SHOWN OR NOT, FROM THE OWNERS OF THE RESPECTIVE UTILITIES. ALL UTILITY OWNERS SHALL BE NOTIFIED FOR LOCATES BY THE CONTRACTOR 72 HOURS PRIOR TO EXCAVATION.

NOTE:  
ALL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO CONSTRUCTION AND SHALL CONFORM TO THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES CONSTRUCTION SITE EROSION CONTROL AND TECHNICAL STANDARDS.

#### INDEX TO DRAWINGS

SHT. NO.	DESCRIPTION
1	LOCATION MAPS AND INDEX TO DRAWINGS
2	EXISTING SITE CONDITIONS
3	PLANT COMMUNITY ZONES
4	MISCELLANEOUS DETAILS
5	MISCELLANEOUS DETAILS
6	MISCELLANEOUS DETAILS
7	EROSION CONTROL - INLET PROTECTION AND MISCELLANEOUS DETAILS
8	EROSION CONTROL - DITCH CHECK DETAILS
9	EROSION CONTROL - SHEET FLOW DETAILS
10	EROSION MAT - SLOPE APPLICATION DETAILS



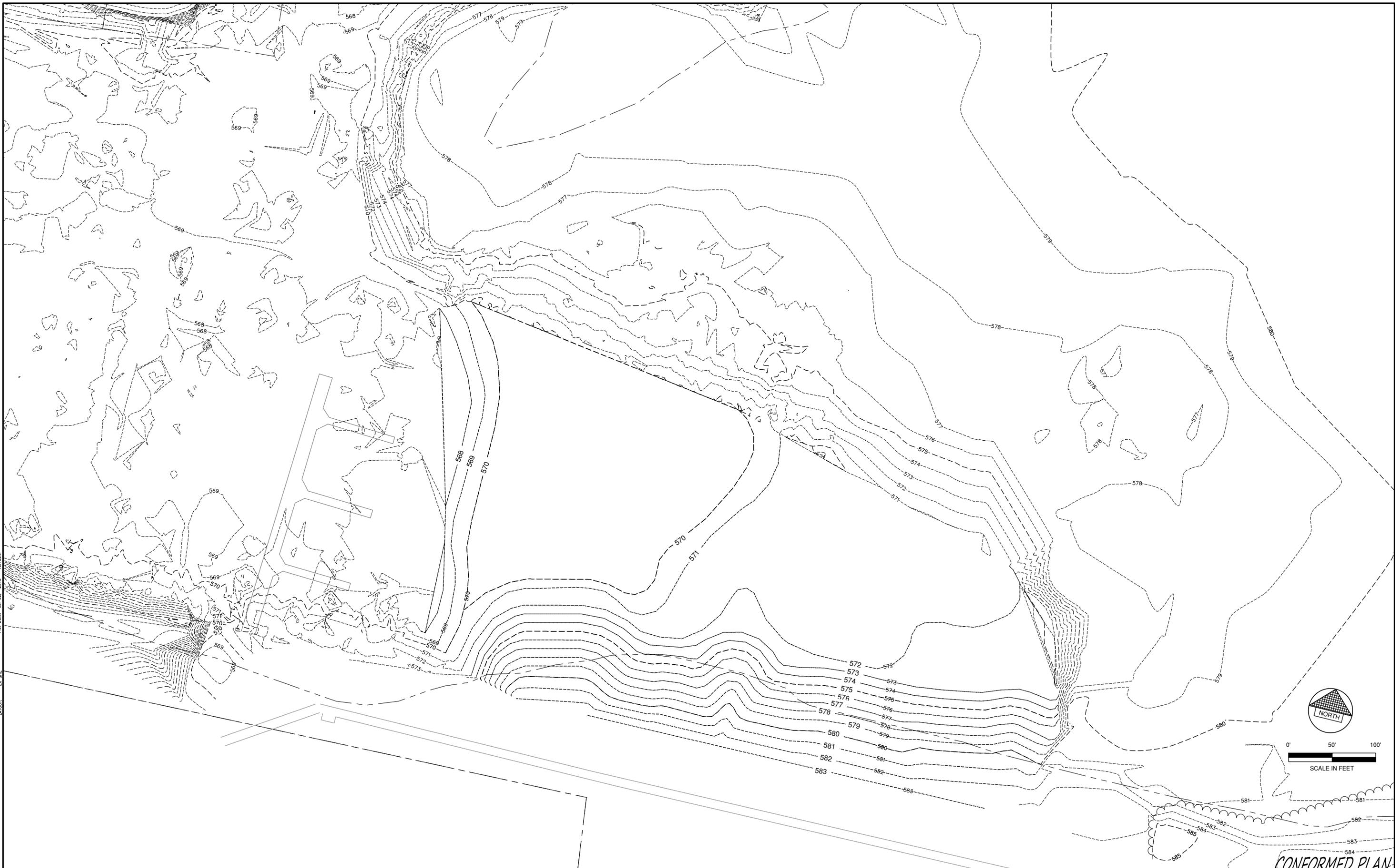
LOCATION MAP

CONFORMED PLAN

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Plot Date: Jun 28, 2015 11:23:00am

NO.	DATE	APPROV.	REVISION	NO.	DATE	APPROV.	REVISION	DRAWN	CONTRACT NO. 3775-15-01	DATE	<b>Robert E. Lee &amp; Associates, Inc.</b> ENGINEERING, SURVEYING, ENVIRONMENTAL SERVICES 1250 CENTENNIAL CENTRE BOULEVARD HOBART, WI 54155 INTERNET: www.releeinc.com	SHEET NO.
								CHECKED	MENKAUNEE HARBOR RESTORATION PROJECT	04/22/14		1
								JGS	CITY OF MARINETTE	37750000C		
								DESIGNED	MARINETTE COUNTY, WISCONSIN	37750000C		
								RHT	LOCATION MAPS AND INDEX TO DRAWINGS	37750000C		

File: R:\3775\3775\_3775000\New\Proposed Beneficial Use Fill Drawing.dwg  
 Plot Date: Jul 22, 2015 10:00am  
 LAYOUT: EX SITE



*CONFORMED PLAN*

NO.	DATE	APPROV.	REVISION	NO.	DATE	APPROV.	REVISION

DRAWN LLP
CHECKED JGS
DESIGNED JGS

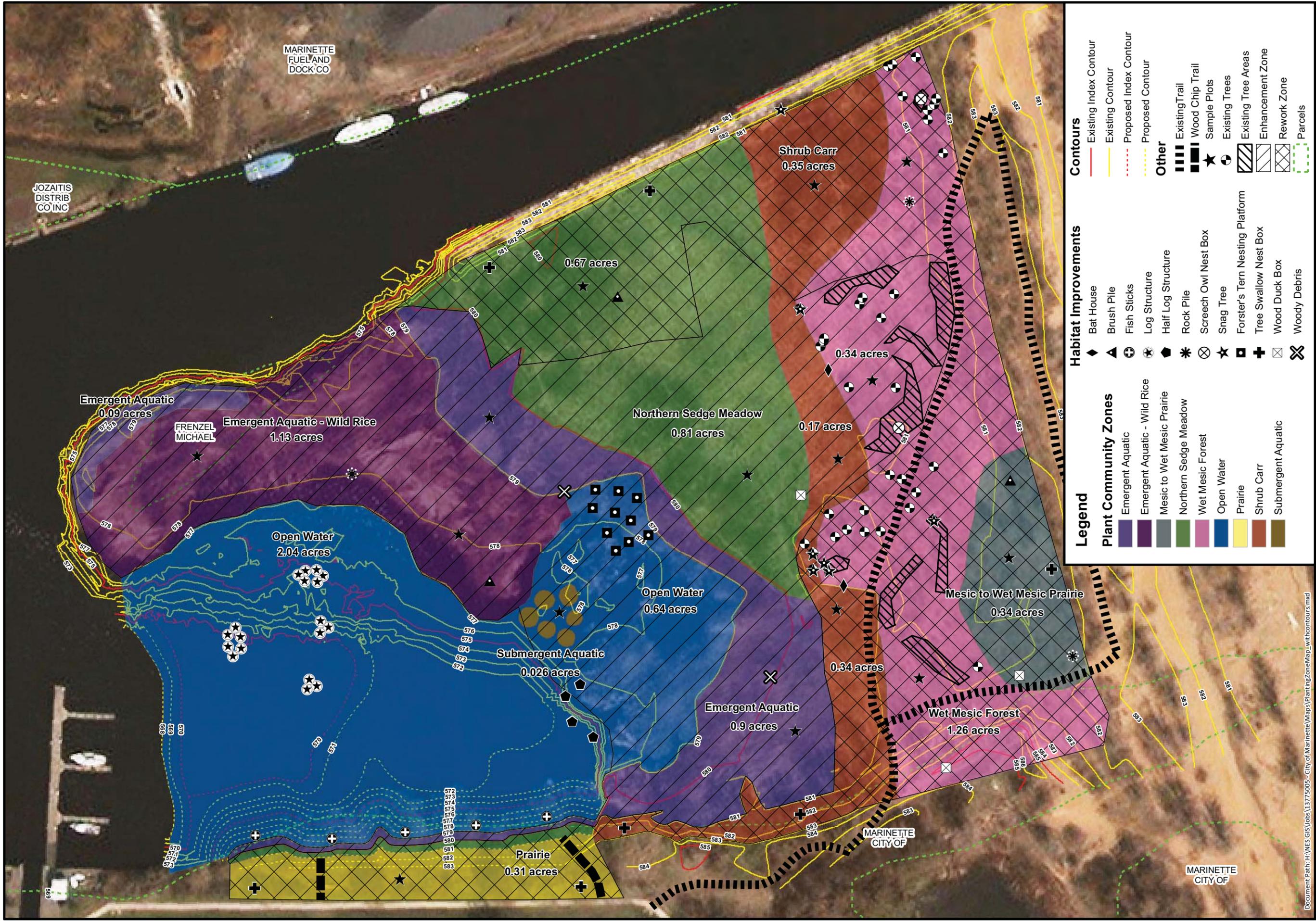
CONTRACT NO. 3775-15-01  
 MENEKAUNEE HARBOR RESTORATION PROJECT  
 CITY OF MARINETTE  
 MARINETTE COUNTY, WISCONSIN

EXISTING SITE CONDITIONS

DATE 2/2015
FILE PROPOSED BENEFICIAL USE FILL DRAWING
JOB NO. 3775005

**Robert E. Lee & Associates, Inc.**  
 ENGINEERING, SURVEYING, ENVIRONMENTAL SERVICES  
 1250 CENTENNIAL CENTRE BOULEVARD  
 HOBART, WI 54155  
 INTERNET: www.releeinc.com  
 PHONE: (920) 662-9641  
 FAX: (920) 662-9141

SHEET NO.  
**2**



MARINETTE  
FUEL AND  
DOCK CO

JOZAITIS  
DISTRIB  
CO INC

FRENZEL  
MICHAEL

MARINETTE  
CITY OF

MARINETTE  
CITY OF

**Legend**

**Plant Community Zones**

- Emergent Aquatic
- Emergent Aquatic - Wild Rice
- Mesic to Wet Mesic Prairie
- Northern Sedge Meadow
- Wet Mesic Forest
- Open Water
- Prairie
- Shrub Carr
- Submergent Aquatic

**Habitat Improvements**

- Bat House
- Brush Pile
- Fish Sticks
- Log Structure
- Half Log Structure
- Rock Pile
- Screech Owl Nest Box
- Snag Tree
- Forster's Tern Nesting Platform
- Tree Swallow Nest Box
- Wood Duck Box
- Woody Debris

**Contours**

- Existing Index Contour
- Existing Contour
- Proposed Index Contour
- Proposed Contour

**Other**

- Existing Trail
- Wood Chip Trail
- Sample Plots
- Existing Trees
- Existing Tree Areas
- Enhancement Zone
- Rework Zone
- Parcels

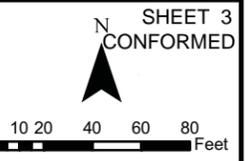


**Plant  
Community  
Zones**

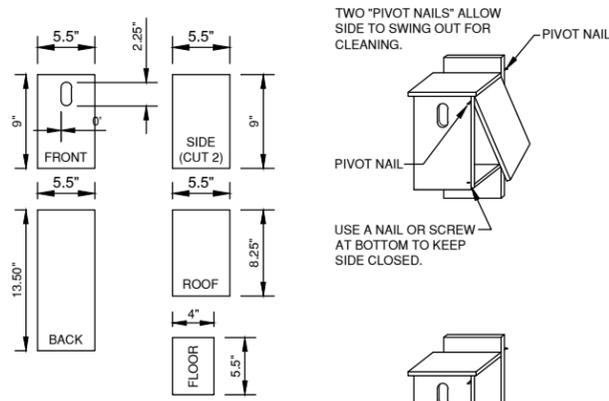
5/22/2015

**Lower Menominee River Area of Concern  
Menekaunee Harbor Restoration Project  
City of Marinette-Grant/Proj. No. GL-00E01312-0  
REL Project No. 13775005  
Marinette, Marinette County, WI**

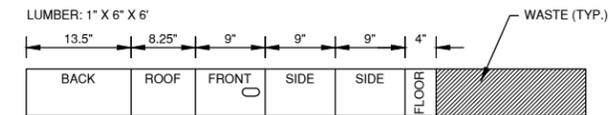
Sources: Robert E. Lee & Associates, Inc., 2010 WROC, ESRI  
 Disclaimer: Robert E. Lee & Associates, Inc. makes every effort to ensure this map is free of errors but does not warrant the map or its features are either spatially or temporally accurate or fit for a particular use. Robert E. Lee & Associates, Inc., provides this map without any warranty of any kind whatsoever, either expressed or implied.



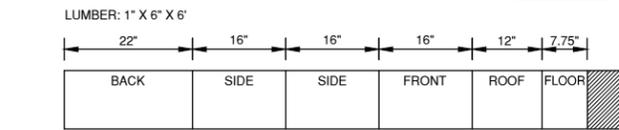
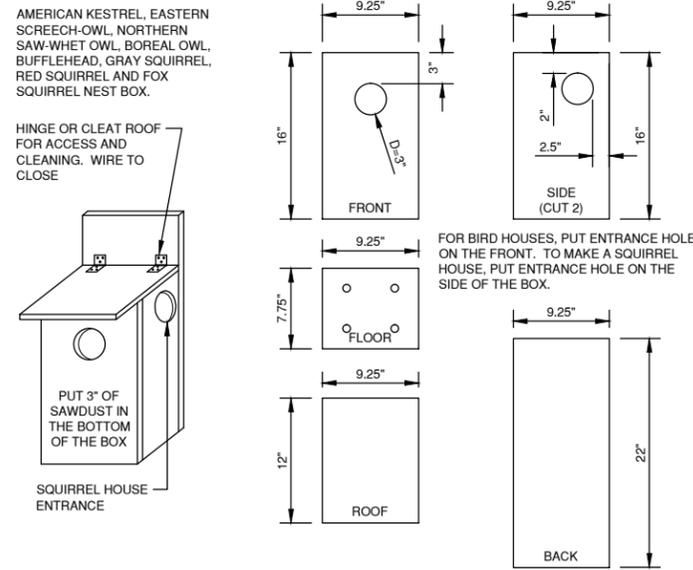
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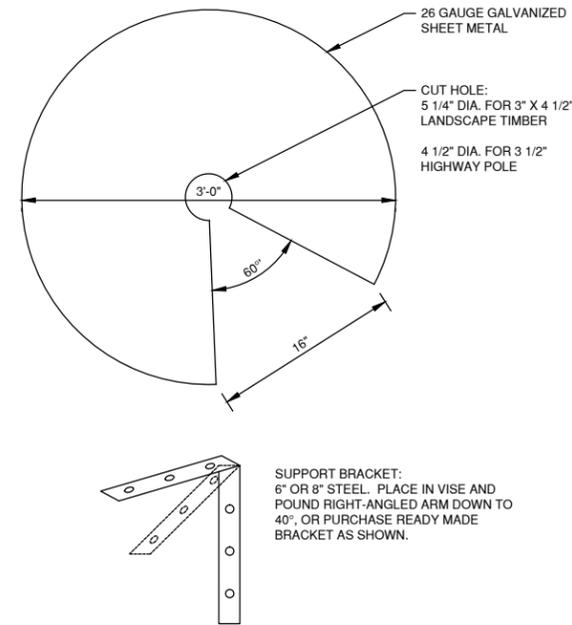
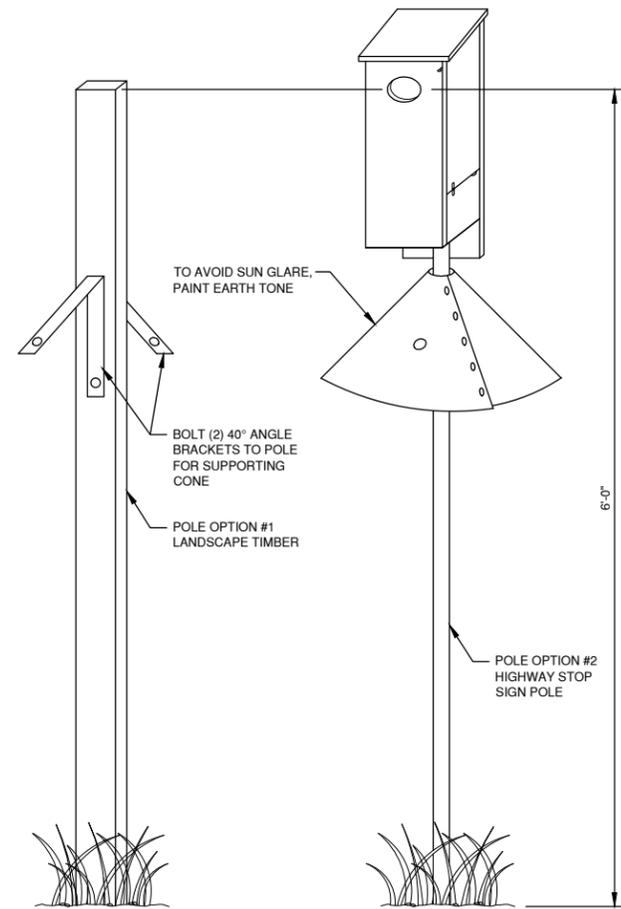
NOTE: THESE DIMENSIONS ARE FOR 3/4" THICK BOARD. SOME CEDAR BOARDS ARE 7/8" THICK. IF SO, THE FLOOR MUST BE 3 3/4" WIDE, NOT 4".



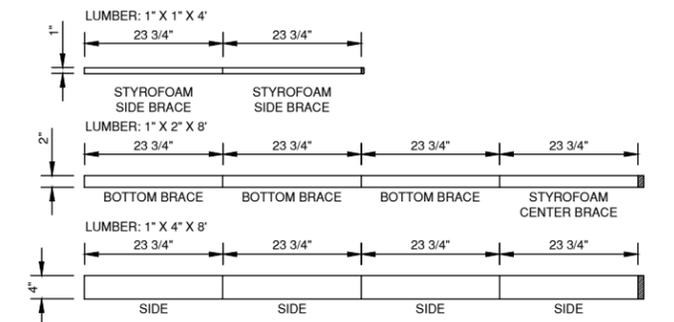
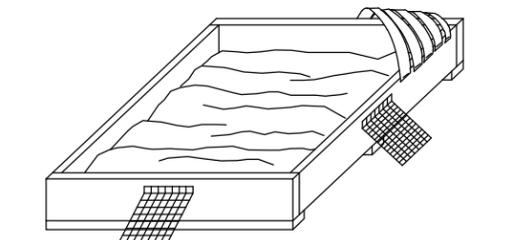
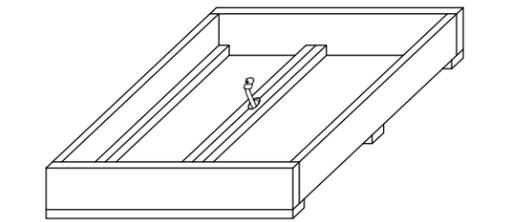
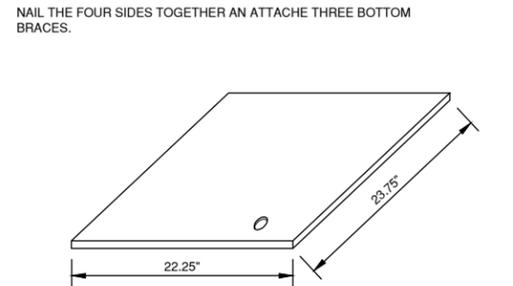
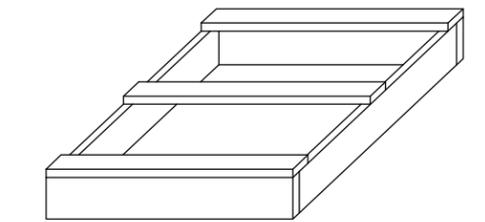
**TREE SWALLOW AND EASTERN BLUEBIRD NEST BOX**



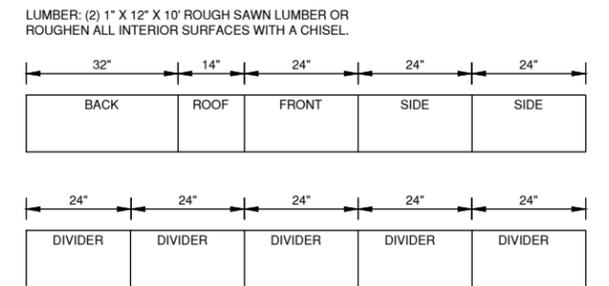
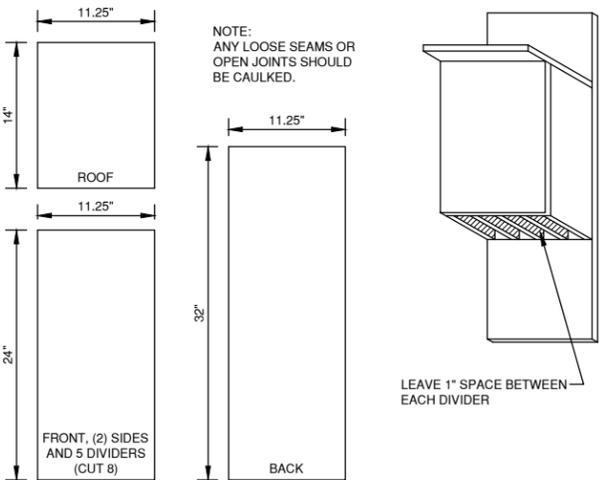
**OWL AND SQUIRREL NEST BOX**



**CONE GUARD DETAIL**



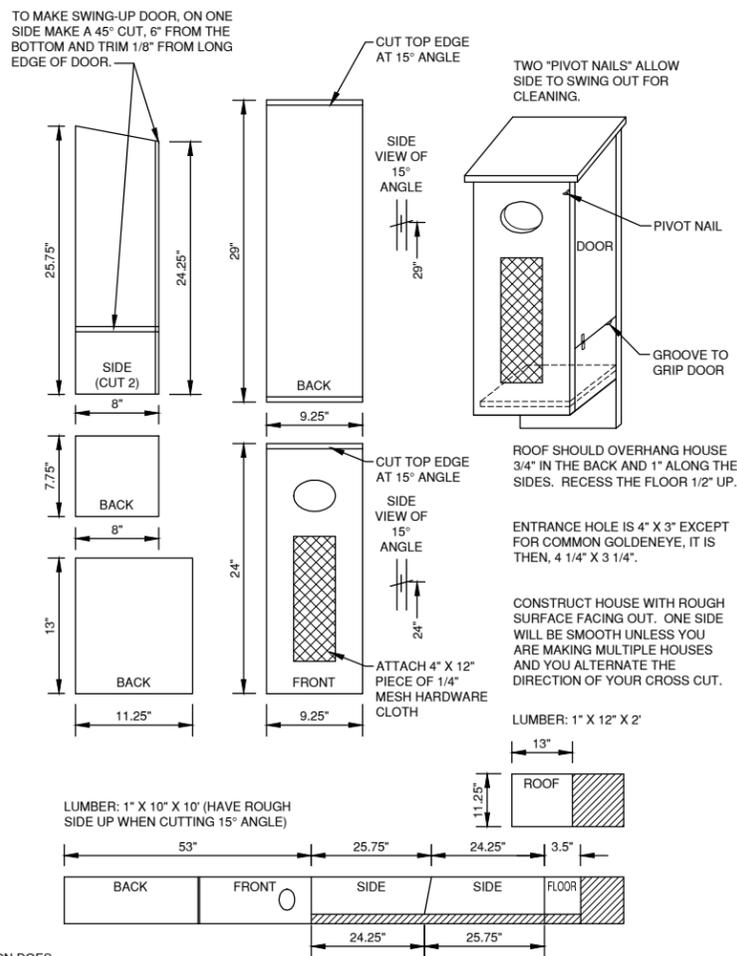
**FORSTER'S TERN NEST PLATFORM**



**BAT HOUSE**

NOTE: ALL NESTING/ROOSTING STRUCTURES SHALL BE CONSTRUCTED WITH CEDAR WOOD.

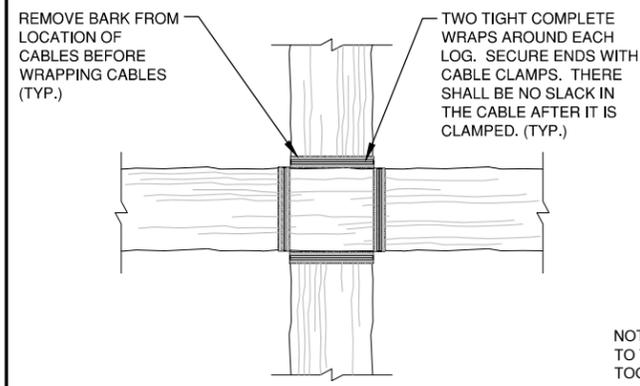
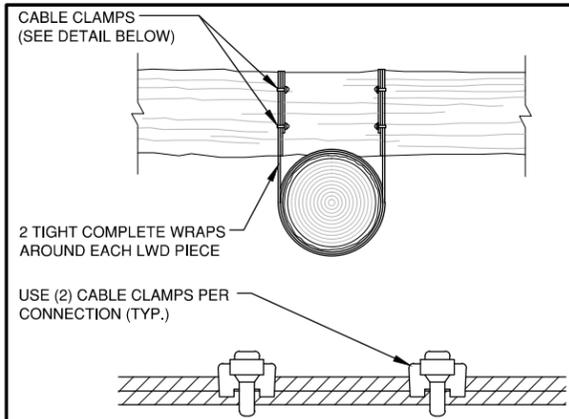
DISCLAIMER: THE USE OF TRADE NAMES OR REFERENCES TO SPECIFIC PRODUCTS OR COMPANIES IN THIS PUBLICATION DOES NOT IMPLY ENDORSEMENT BY THE MINNESOTA DEPARTMENT OF NATURAL RESOURCES. THEY ARE INTENDED ONLY AS AN AID TO THE READER BECAUSE MANY OF THESE PRODUCTS MENTIONED IN THE TEXT ARE SPECIALIZED AND ARE MARKETED BY PRIVATE CITIZENS OR SMALL BUSINESSES THAT CAN BE HARD FOR THE READER TO LOCATE. IF YOU ARE AWARE OF OTHER PRODUCTS OR BUSINESSES THAT SHOULD BE INCLUDED IN FUTURE EDITIONS OF THIS BOOK, PLEASE CONTACT THE NONGAME WILDLIFE PROGRAM, DEPARTMENT OF NATURAL RESOURCES, 500 LAFAYETTE ROAD, ST. PAUL MN 55155



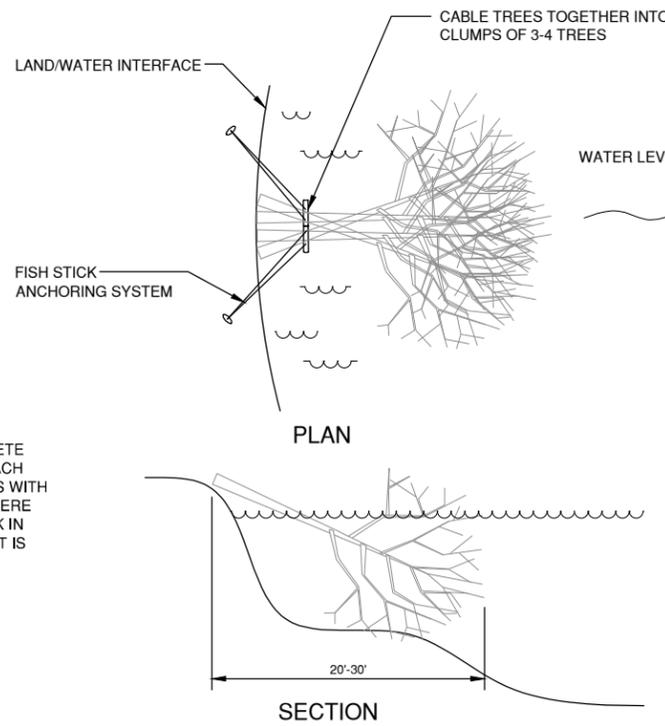
**WOOD DUCK, HOODED MERGANSER AND COMMON GOLDENEYE NEST BOX**

NO.	DATE	APPROV.	REVISION	NO.	DATE	APPROV.	REVISION	DRAWN LLP	CONTRACT NO. 3775-15-01 MENEKAUNEE HARBOR RESTORATION PROJECT CITY OF MARINETTE MARINETTE COUNTY, WISCONSIN	MISCELLANEOUS DETAILS	DATE 24/2015	<b>Robert E. Lee &amp; Associates, Inc.</b> ENGINEERING, SURVEYING, ENVIRONMENTAL SERVICES 1250 CENTENNIAL CENTRE BOULEVARD HOBART, WI 54155 INTERNET: www.releinc.com	SHEET NO. <b>4</b>
								CHECKED RHT			FILE DETAILS		PHONE:(920) 662-9641
								DESIGNED JRH			JOB NO. 3775005		FAX:(920) 662-9141

*CONFORMED PLAN*

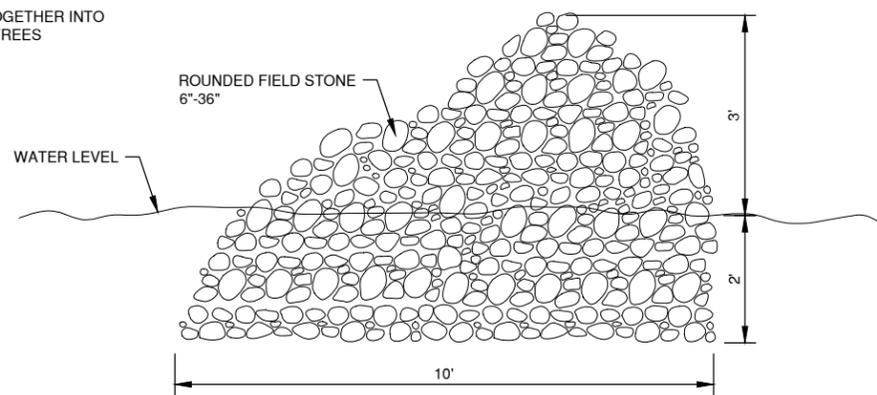


LOG CABLING DETAIL

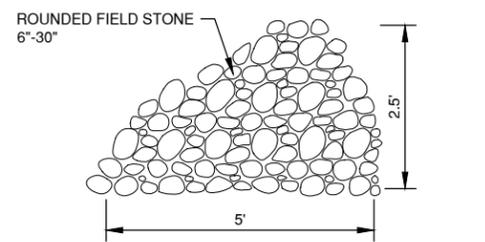


NOTE: TWO PIPES WILL BE USED PER GROUPING OF TREES; AND, EACH PIPE WILL BE ATTACHED TO TWO SEPARATE TREE TRUNKS WITHIN THE GROUP. EACH GROUPING SHALL BE SECURED TOGETHER AROUND EACH TRUNK WITH A MIN. 3/8" GALVANIZED CABLE AND CABLE CLAMPS.

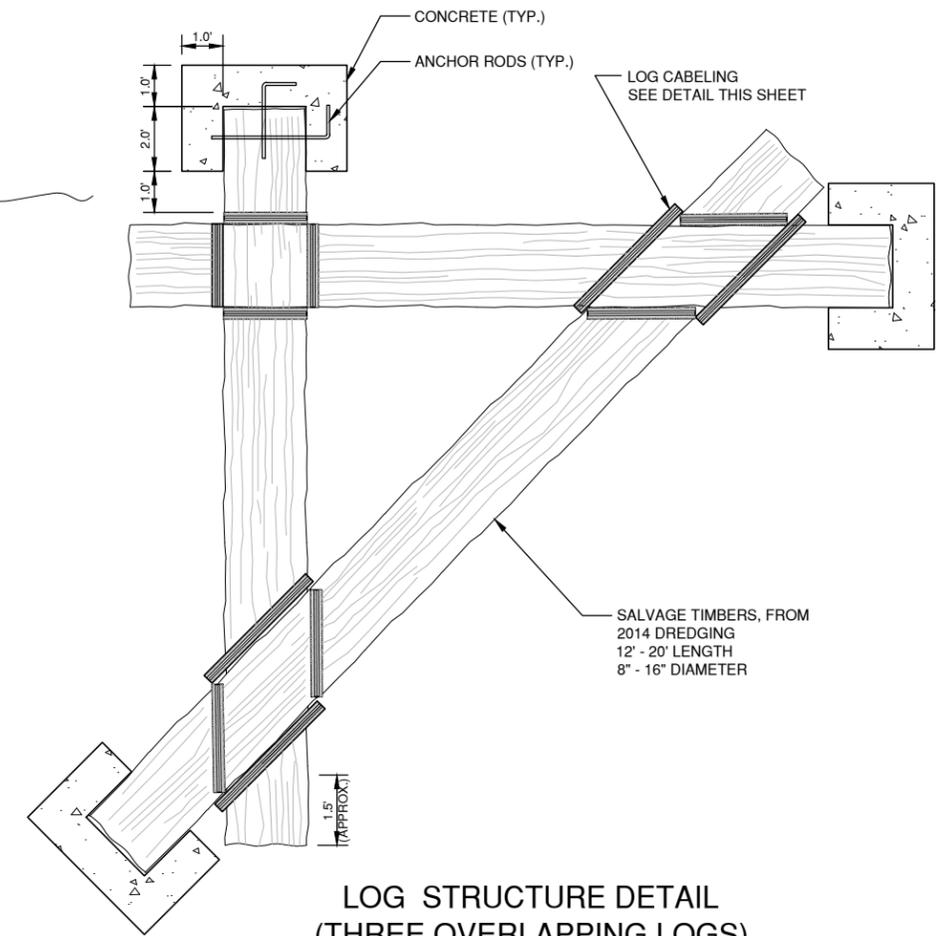
FISH STICK DETAIL



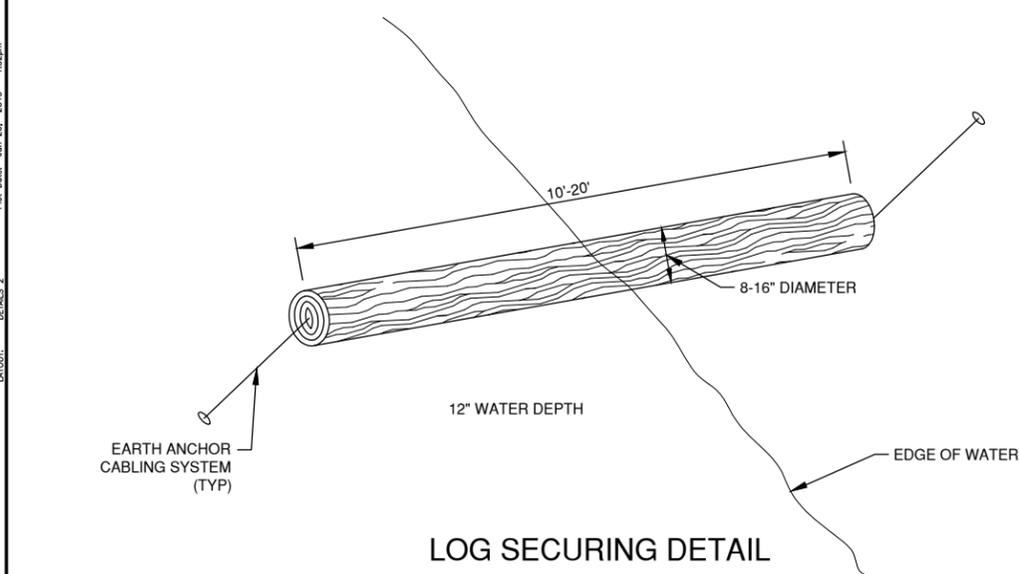
ROCK PILE IN WATER DETAIL



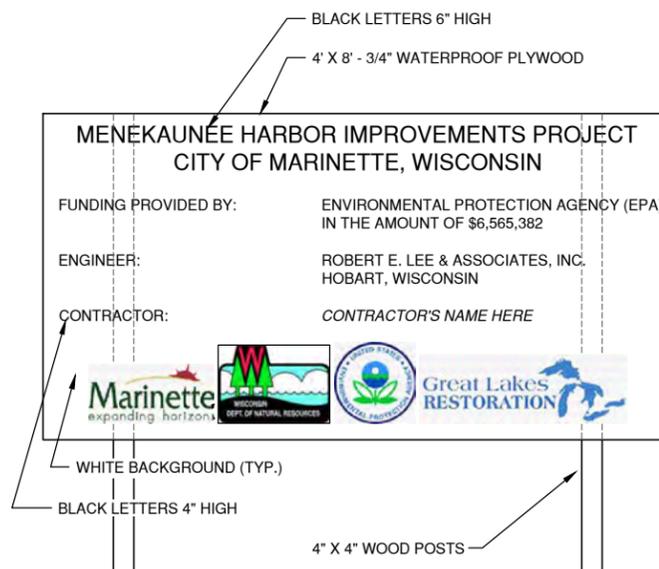
ROCK PILE OUT OF WATER DETAIL



LOG STRUCTURE DETAIL (THREE OVERLAPPING LOGS)

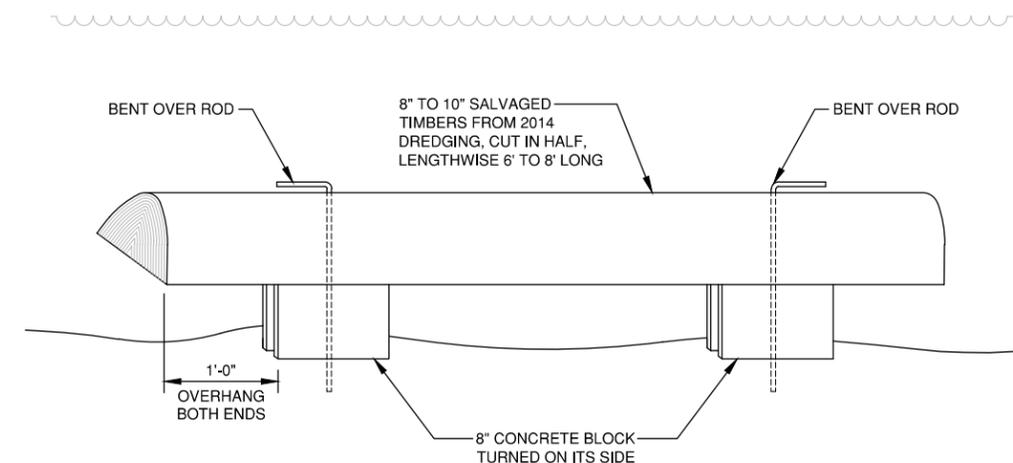


LOG SECURING DETAIL



NOTES:  
1. ALL PAINT SHALL BE EXTERIOR GRADE ENAMEL IN COLOR INDICATED.  
2. SIGN SHOULD INCLUDE GREAT LAKES RESTORATION INITIATIVE LOGO (GLRI) IN LOWER RIGHT HAND CORNER OF SIGN. GLRI LOGO TO BE PROVIDED TO CONTRACTOR BY EPA.  
3. FINAL SIGN DETAILS AND INFORMATION TO BE COORDINATED WITH OWNER. SUBMIT SHOP DRAWING FOR REVIEW.

SIGN PLATE DETAIL



SECTION  
HALF LOG STRUCTURE DETAIL

NO.	DATE	APPROV.	REVISION	NO.	DATE	APPROV.	REVISION
1	5/22/15	RHT	ADDENDUM NO. 2				

CONTRACT NO. 3775-15-01  
MENEKAUNEE HARBOR RESTORATION PROJECT  
CITY OF MARINETTE  
MARINETTE COUNTY, WISCONSIN

MISCELLANEOUS DETAILS

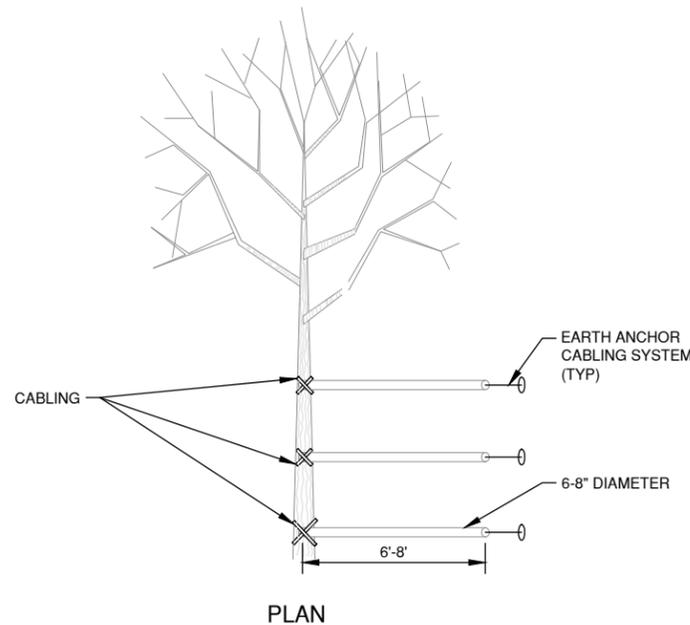
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FILE	DETAILS
JOB NO.	3775005

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SHEET NO.  
**5**

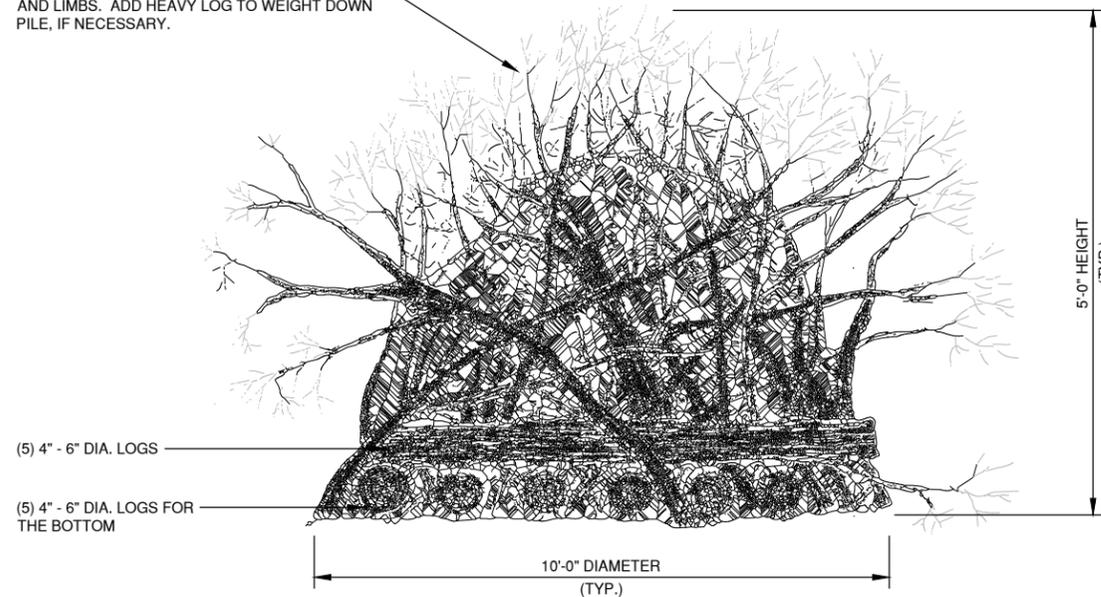
CONFORMED PLAN

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Plot Date: Jun 26, 2015 - 10:25am  
LAYOUT: DETAILS 2

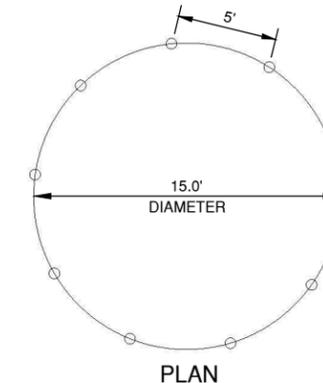


EXISTING TREE TOP ANCHORING

CONSTRUCT WITH ODD LENGTH BRANCHES AND LIMBS. ADD HEAVY LOG TO WEIGHT DOWN PILE, IF NECESSARY.



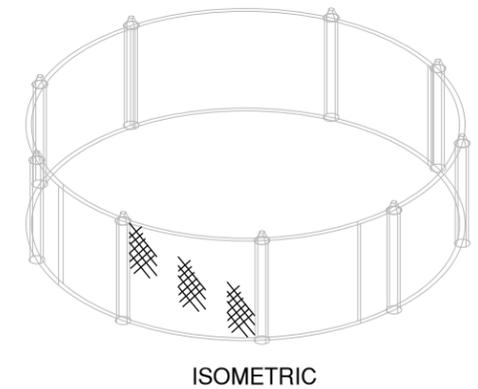
BRUSH PILE DETAIL



PLAN

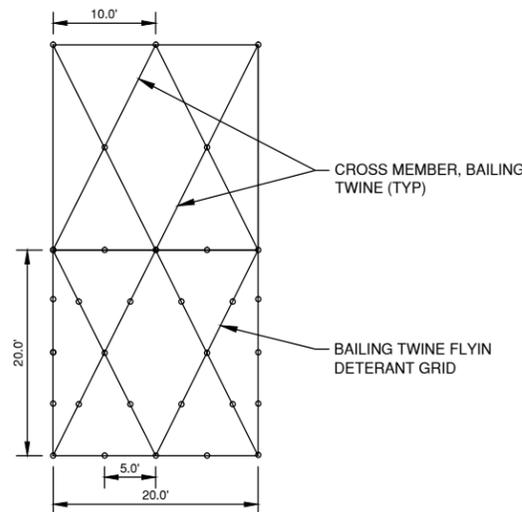
SUBMERGENT AQUATIC PLANT PROTECTION

\*SAME MATERIAL AS CARP EXCLUSION FENCING\*



ISOMETRIC

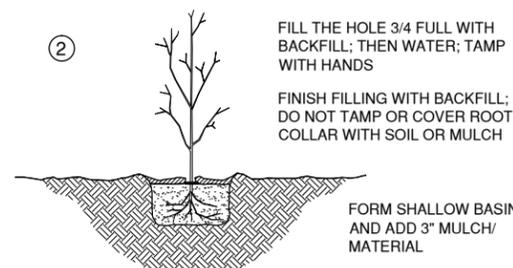
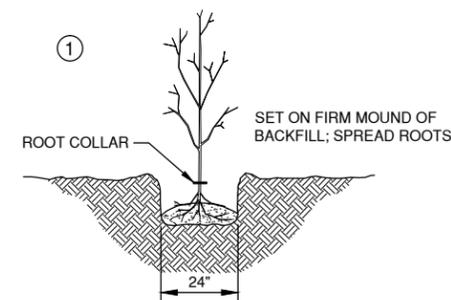
GOOSE EXCLUSION FENCING PLAN VIEW



CARP EXCLUSION FENCING PLAN VIEW

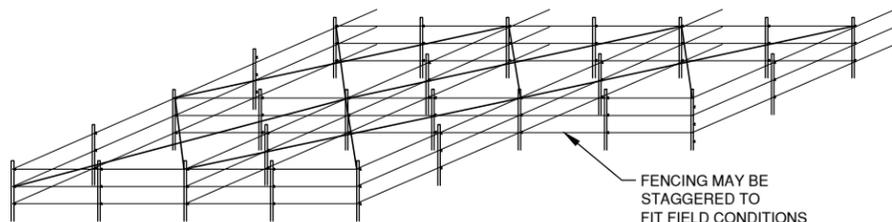
- NOTE:
- GOOSE FENCING MATERIAL SHALL BE 48" GREEN SNOW FENCE
  - GOOSE FENCING POST SHOULD BE 10' APART, CARP FENCING POST SHOULD BE 5' APART

NOTE:  
PRUNE DAMAGED OR WEAK ROOTS AND BRANCHES.

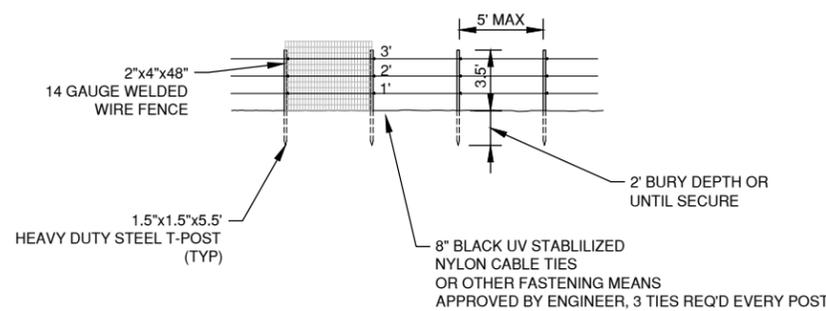


TYPICAL BARE-ROOT PLANTING DETAIL

GOOSE EXCLUSION FENCE ISOMETRIC VIEW

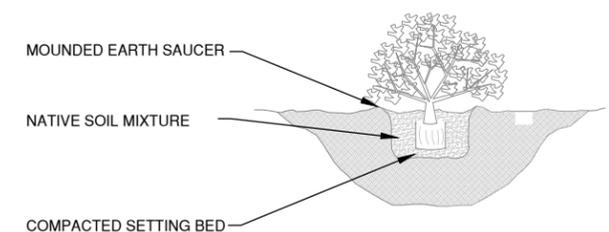


CARP EXCLUSION FENCE ISOMETRIC VIEW



CARP EXCLUSION FENCING ELEVATION VIEW

CARP AND GOOSE EXCLUSION FENCING DETAIL



TYPICAL POTTED TREE AND SHRUB PLANTING DETAIL

NOTE: SHRUB SHALL BEAR SAME RELATION TO FINISH GRADE AS IN NURSERY.

File: R:\3701\3775\3775000\Drawings\DETAILS.dwg  
 Plot Date: Jun 26, 2015 10:56am  
 Layer: DETAILS 3

NO.	DATE	APPROV.	REVISION	NO.	DATE	APPROV.	REVISION

CONTRACT NO. 3775-15-01  
 MENEKAUNEE HARBOR RESTORATION PROJECT  
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MISCELLANEOUS DETAILS

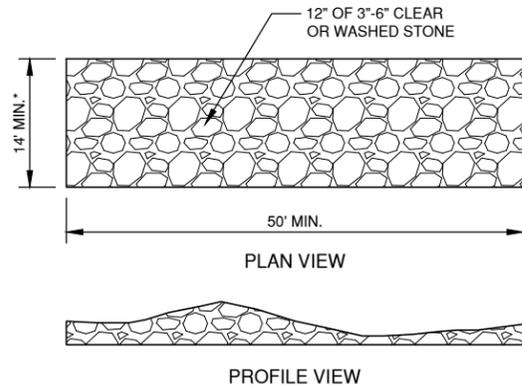
DATE: 04/20/15  
 FILE: DETAILS  
 JOB NO.: 3775005

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SHEET NO.  
**6**

CONFORMED PLAN



\*14" MIN. OR FULL WIDTH OF THE EGRESS POINT.  
REFERENCE WDNR TECHNICAL STANDARD 1057.

**TRACKING PAD DETAIL**  
(IF APPLICABLE)

**INLET PROTECTION NOTES:**

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE WDOT PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- ① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
- ③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2"x4".

**INSTALLATION NOTES:**  
TYPE "B" & "C"

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

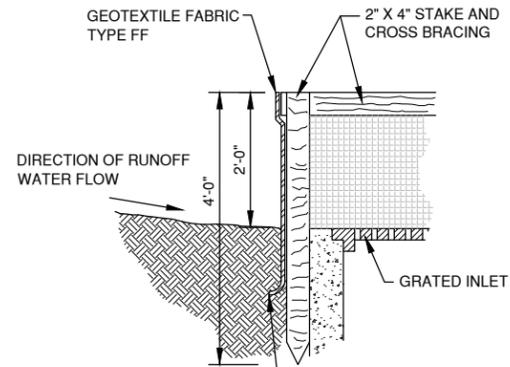
DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE "D"

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30" MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY, CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT THE MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.



BURIED FABRIC MIN. 6" DEPTH

2" X 4" STAKE AND CROSS BRACING

GEOTEXTILE FABRIC TYPE FF

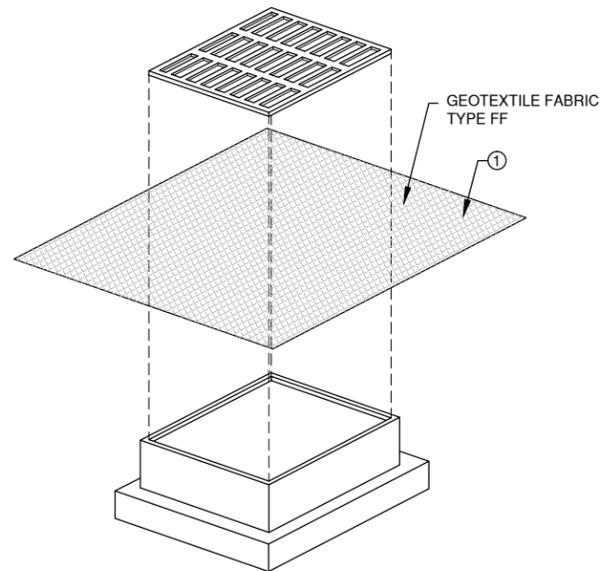
2" X 4" STAKE AND CROSS BRACING

2'-0"

ATTACH GEOTEXTILE FABRIC, TYPE FF TO THE STAKES AND CROSS BRACING.

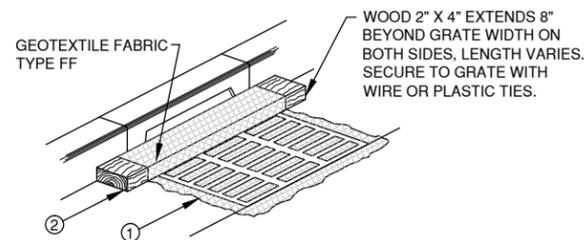
INLET WITH OR WITHOUT GRATE

**INLET PROTECTION, TYPE A**

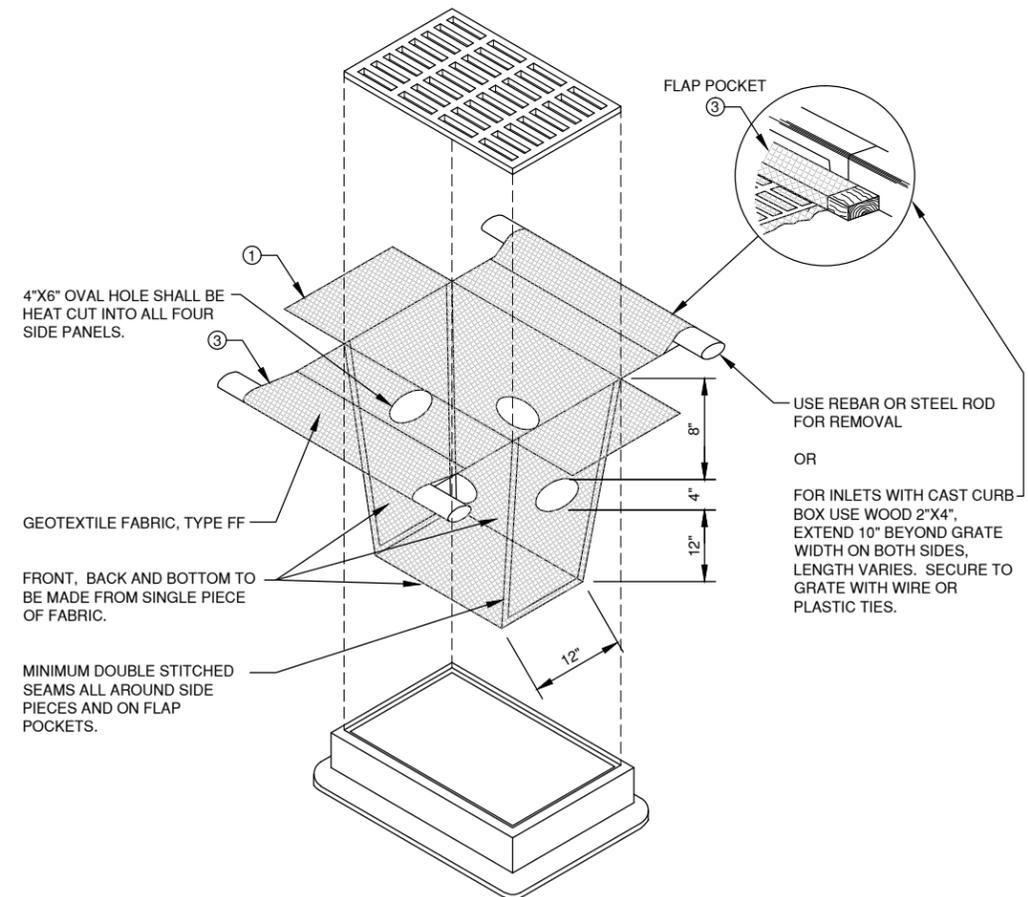


**INLET PROTECTION, TYPE B (WITHOUT CURB BOX)**

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



**INLET PROTECTION, TYPE C (WITH CURB BOX)**



**INLET PROTECTION, TYPE D**

(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT CURB BOX AS PER NOTE "2")

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 LAYOUT: INLET PROTECTION  
 PLAN VIEW: INLET PROTECTION

NO.	DATE	APPROV.	REVISION	NO.	DATE	APPROV.	REVISION

CONTRACT NO. 3775-15-01  
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 MARINETTE COUNTY, WISCONSIN

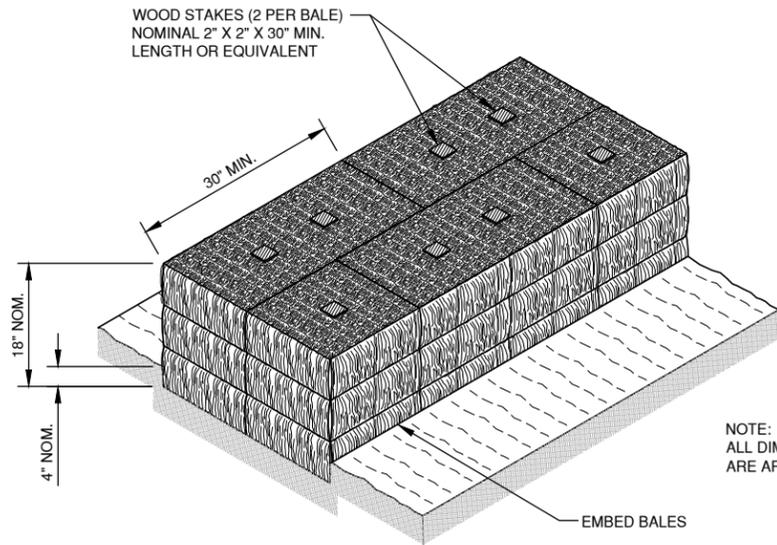
EROSION CONTROL  
 INLET PROTECTION AND  
 MISCELLANEOUS DETAILS

DATE	06/20/15
FILE	EROSION CONTROL
JOB NO.	3775005

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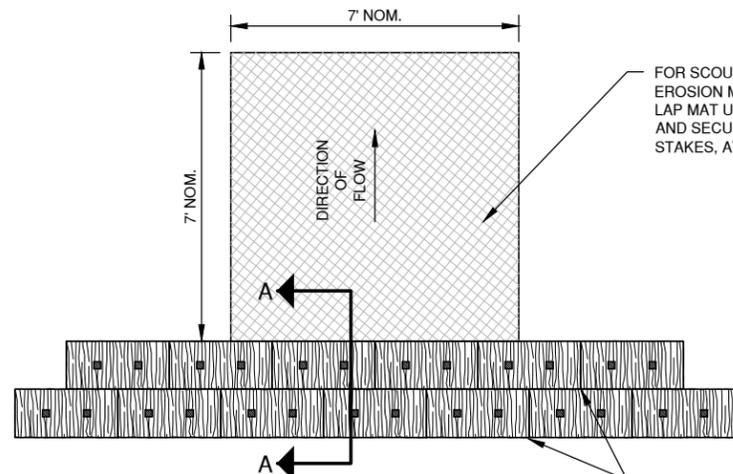
SHEET NO.  
**7**

*CONFORMED PLAN*



SECTION A-A

NOTE:  
ALL DIMENSIONS  
ARE APPROXIMATE

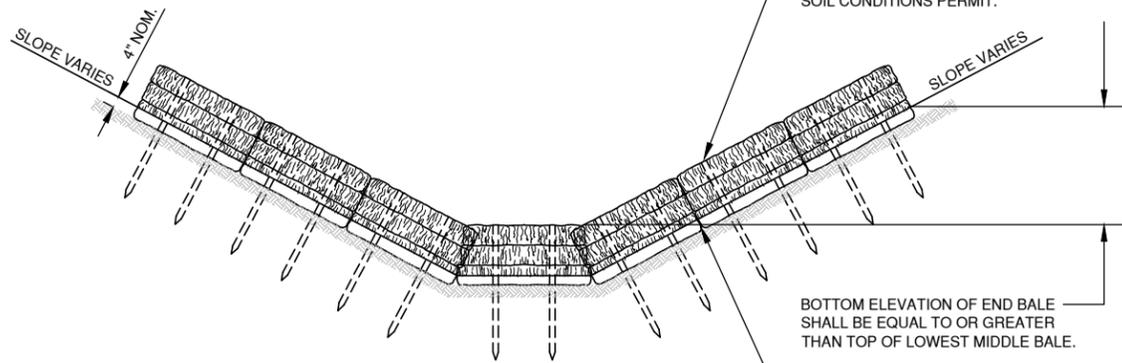


PLAN VIEW

FOR SCOUR PROTECTION USE:  
EROSION MAT FOR CHANNEL LINING,  
LAP MAT UNDER UPSTREAM BALES  
AND SECURE FABRIC WITH WOOD  
STAKES, AT 3-FOOT INTERVALS.

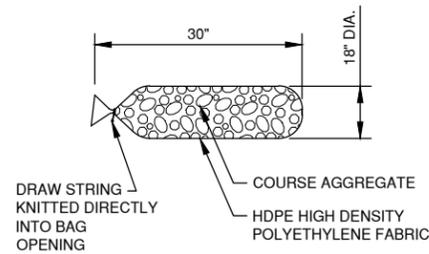
STAGGER JOINTS BETWEEN  
ADJACENT ROWS OF BALES.

STAKES DRIVEN FLUSH WITH  
SOIL CONDITIONS PERMIT.



FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES  
TYPE A



FILTER BAG DETAIL

COURSE AGGREGATE INFORMATION

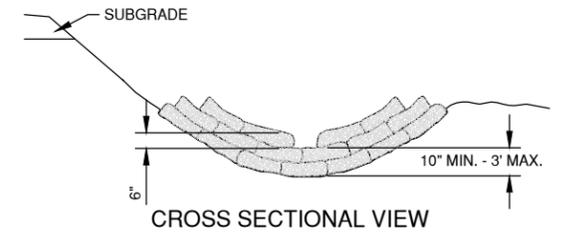
SIEVE SIZE	SIZE NO. AASHTO No. 67 (1)
2 INCH (50 mm)	-
1 1/2 INCH (37.5mm)	-
1 INCH (25.0 mm)	100
3/4 INCH (19.0mm)	90-100
3/8 INCH (9.5mm)	20-55
No. 4 (4.75mm)	0-10
No. 8 (2.36mm)	0-5

(1) SIZE No. ACCORDING TO AASHTO M 43

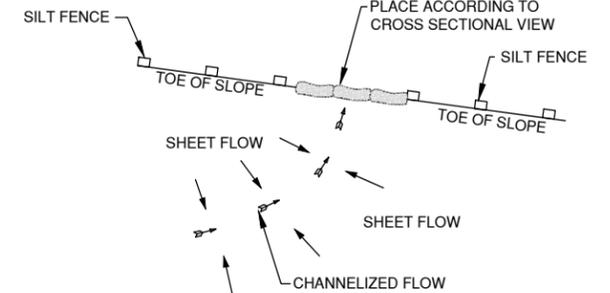
NOTES:

18" X 30" ROCK FILLED FILTER BAG SHALL BE COMPRISED OF THE FOLLOWING:  
HDPE HIGH DENSITY POLYETHYLENE  
HDPE HIGH DENSITY POLYETHYLENE DRAW STRING KNITTED DIRECTLY INTO BAG OPENING.  
80% FABRIC CLOSURE WITH APPARENT OPENING SIZE NO LARGER THAN 1/8" X 1/8"  
ROLLED SEAM USING A MINIMUM OF 480 DENIER POLYESTER SEWING YARN FOR STRENGTH AND DURABILITY.

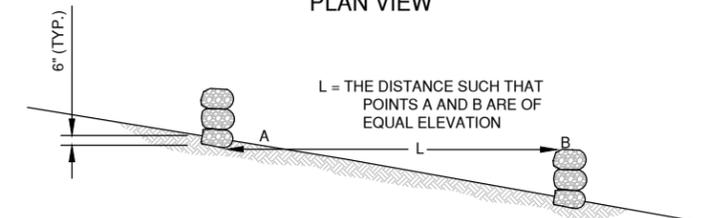
USE WELL GRADED COURSE AGGREGATE CONFORMING TO THE FOLLOWING GRADATION REQUIREMENTS



CROSS SECTIONAL VIEW



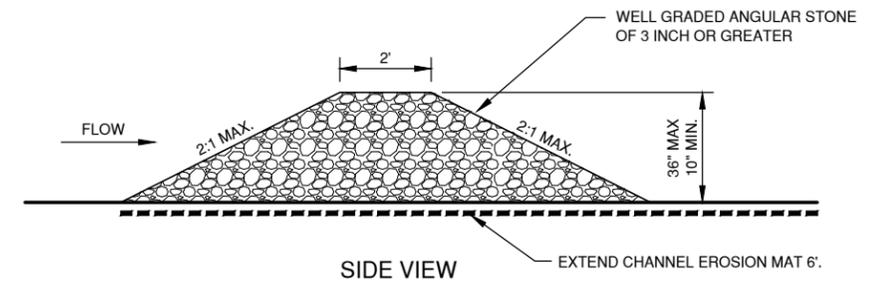
PLAN VIEW



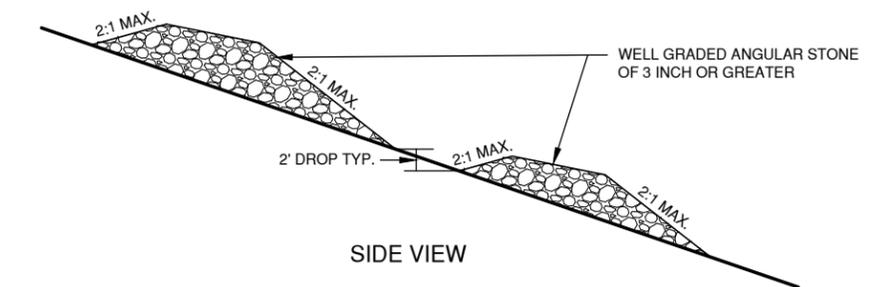
SIDE VIEW

DITCH CHECK DETAIL

ROCK FILLED EROSION CONTROL BAGS  
TYPE B



SIDE VIEW



SIDE VIEW

TEMPORARY DITCH CHECK USING STONE  
TYPE C

PLAN VIEW: DITCH CHECKS LAYOUT: DITCH CHECKS FILE: R:\3701\3775\3775005\env\EROSION CONTROL.dwg PLOT DATE: Jun 26, 2015 10:58am

NO.	DATE	APPROV.	REVISION	NO.	DATE	APPROV.	REVISION

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MENEKAUNEE HARBOR RESTORATION PROJECT  
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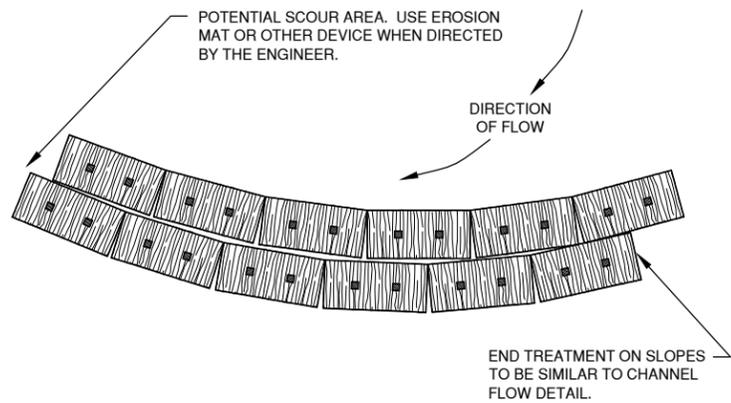
EROSION CONTROL  
DITCH CHECK DETAILS

DATE	06/20/15
FILE	EROSION CONTROL
JOB NO.	3775005

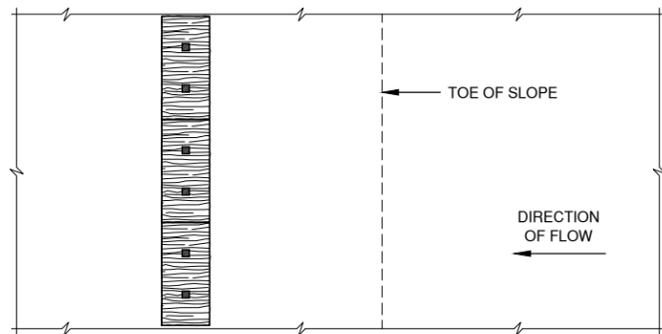
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SHEET NO.  
**8**

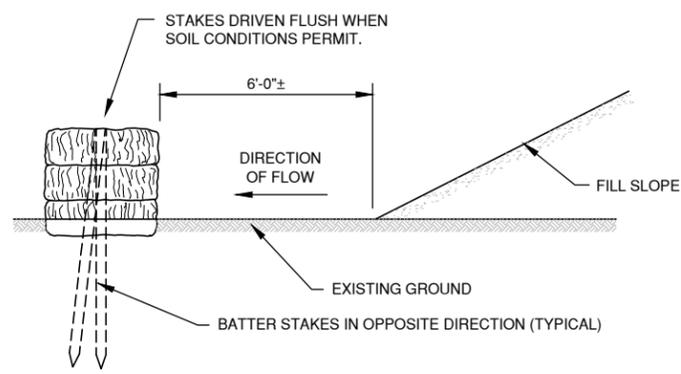
CONFORMED PLAN



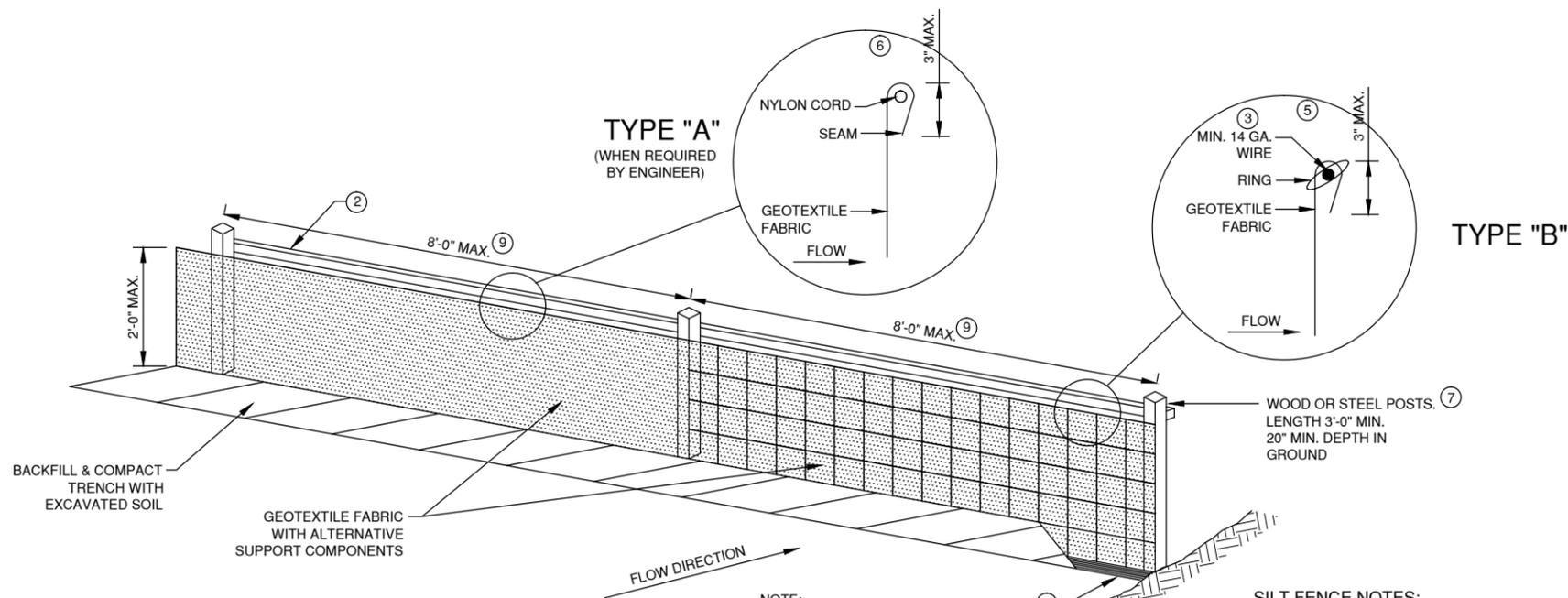
PLAN VIEW  
(WHEN ALTERING THE DIRECTION OF FLOW)



PLAN VIEW

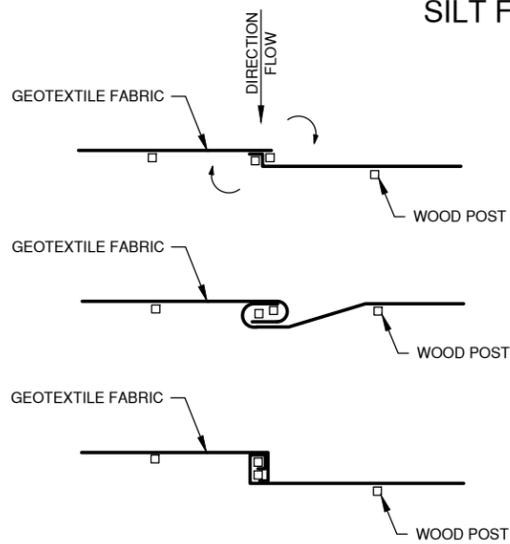


FRONT ELEVATION  
WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE  
**EROSION BALES FOR SHEET FLOW**

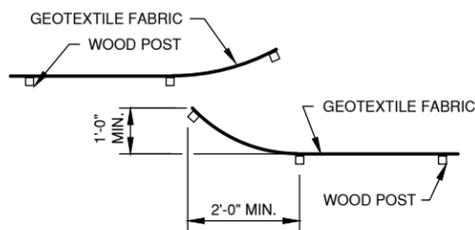


SILT FENCE DETAIL

NOTE:  
ADDITIONAL POST DEPTH OR TIE  
BACKS MAY BE REQUIRED IN  
UNSTABLE SOILS.

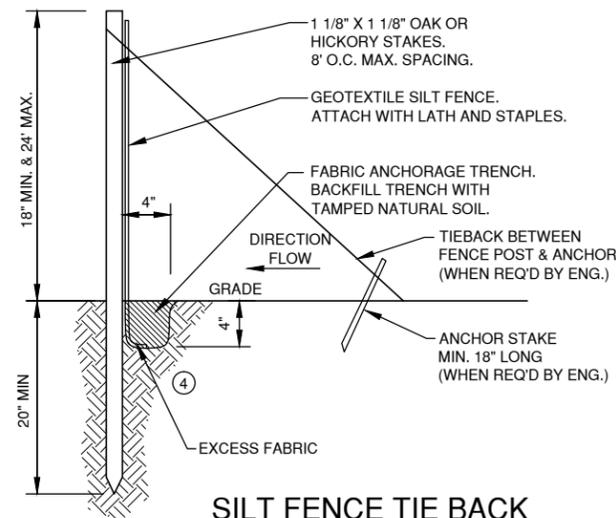


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE



SILT FENCE TIE BACK

**SILT FENCE NOTES:**

- EROSION CONTROL SHALL BE PROVIDED IN ACCORDANCE WITH WDNR TECHNICAL STANDARD.
- CROSS BRACE WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS AS DIRECTED BY THE ENGINEER.
- MINIMUM 14 GAUGE WIRE REQUIRED, FOLD FABRIC 3" OVER THE WIRE AND STAPLE OR PLACE WIRE RINGS ON 12" C.C.
- EXCAVATE A TRENCH A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- WIRE SUPPORT FENCE SHALL BE 14 GAUGE MINIMUM WOVEN WIRE WITH A MAXIMUM MESH SPACING OF 6". SECURE TOP OF GEOTEXTILE FABRIC TO TOP OF FENCE WITH STAPLES OR WIRE RINGS AT 12" C.C. (TYPE B)
- GEOTEXTILE FABRIC SHALL BE REINFORCED WITH AN INDUSTRIAL POLYPROPYLENE NETTING WITH A MAXIMUM MESH SPACING OF 3/4" OR EQUAL. A HEAVY DUTY NYLON TOP SUPPORT CORD OR EQUIVALENT IS REQUIRED. (TYPE A)
- STEEL POSTS SHALL BE STUDDED "TEE" OR "U" TYPE WITH A MINIMUM WEIGHT OF 1.28 LBS./LIN. FT. (WITHOUT ANCHOR) FIN ANCHORS SUFFICIENT TO RESIST POST MOVEMENT ARE REQUIRED. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1 1/8" X 1 1/8" OF OAK OR HICKORY.
- CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL, IF POSSIBLE, BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY, USE ONE OF THE FOLLOWING TWO METHODS: A.) TWIST METHOD -- OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B.) HOOK METHOD -- HOOK THE END OF EACH SILT FENCE LENGTH.
- THE MAXIMUM SPACING OF POSTS FOR WOVEN FABRIC SILT FENCE SHALL BE 8 FEET AND FOR NON-WOVEN FABRIC, 3 FEET.

**EROSION CONTROL SHEET FLOW NOTES:**

- ANY SOIL STOCKPILED THAT REMAINS FOR MORE THAN 7 DAYS SHALL BE COVERED OR TREATED WITH STABILIZATION PRACTICES SUCH AS TEMPORARY OR PERMANENT SEEDING AND MULCHING.
- A MINIMUM OF 4 INCHES OF TOPSOIL MUST BE APPLIED TO ALL AREAS TO BE SEED OR SODDED.
- ALL WASTE AND UNUSED BUILDING MATERIALS (INCLUDING GARBAGE, DEBRIS, CLEANING WASTES, WASTEWATER, TOXIC MATERIALS, OR HAZARDOUS MATERIALS) SHALL BE PROPERLY DISPOSED OF AND NOT ALLOWED TO BE CARRIED OFF-SITE BY RUNOFF OR WIND.
- ALL OFF-SITE SEDIMENT DEPOSITS OCCURRING AS A RESULT OF CONSTRUCTION WORK OR A STORM EVENT SHALL BE CLEANED UP BY THE END OF EACH DAY. **FLUSHING SHALL NOT BE ALLOWED.**
- ANY SOIL EROSION THAT OCCURS AFTER FINAL GRADING AND/OR THE APPLICATION OF STABILIZATION MEASURES MUST BE REPAIRED AND THE STABILIZATION WORK REDONE.
- FOR ANY DISTURBED AREA THAT REMAINS INACTIVE FOR GREATER THAN 7 WORKING DAYS, OR WHERE GRADING WORK EXTENDS BEYOND THE PERMANENT SEEDING DEADLINES, THE SITE MUST BE TREATED WITH TEMPORARY STABILIZATION MEASURES SUCH AS SOIL TREATMENT, TEMPORARY SEEDING AND/OR MULCHING.
- ALL TEMPORARY EROSION CONTROL PRACTICES SHALL BE MAINTAINED UNTIL THE SITE IS STABILIZED WITH 70% VEGETATION AND A NOTICE OF TERMINATION HAS BEEN APPROVED BY THE DNR.
- WIND EROSION SHALL BE KEPT TO A MINIMUM DURING CONSTRUCTION. WATERING, MULCH OR A TACKING AGENT MAY NEED TO BE UTILIZED TO PROTECT NEARBY RESIDENCES/WATER RESOURCES.
- CONTRACTOR RESPONSIBLE FOR MAINTAINING ALL THE EROSION CONTROL MEASURES IN CONFORMANCE WITH THE WDNR CONSERVATION PRACTICE STANDARDS, LATEST EDITION.
- UPON COMPLETION OF STORM INLET CONSTRUCTION, INSTALL STORM DRAIN INLET PROTECTION FOR CONSTRUCTION SITE AS SPECIFIED.
- FINE SEDIMENT ACCUMULATIONS SHALL BE CLEANED FROM STREETS, PRIVATE DRIVES, OR PARKING AREAS BY MANUAL OR MECHANICAL SWEEPING A MINIMUM OF ONCE PER WEEK AND BEFORE ALL IMMINENT RAINS.
- EROSION AND SEDIMENT CONTROL STRUCTURES SHALL BE INSPECTED WEEKLY AND WITHIN 24 HOURS OF RAINFALL OF 0.5 INCH OR MORE.

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DATE: 06/20/15  
DRAWN: RLH  
CHECKED: JGS  
DESIGNED: RHT  
LAYOUT: SHEET FLOW  
PLAN VIEW: SHEET FLOW

NO.	DATE	APPROV.	REVISION	NO.	DATE	APPROV.	REVISION

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MENEKAUNEE HARBOR RESTORATION PROJECT  
CITY OF MARINETTE  
MARINETTE COUNTY, WISCONSIN

EROSION CONTROL  
SHEET FLOW DETAILS

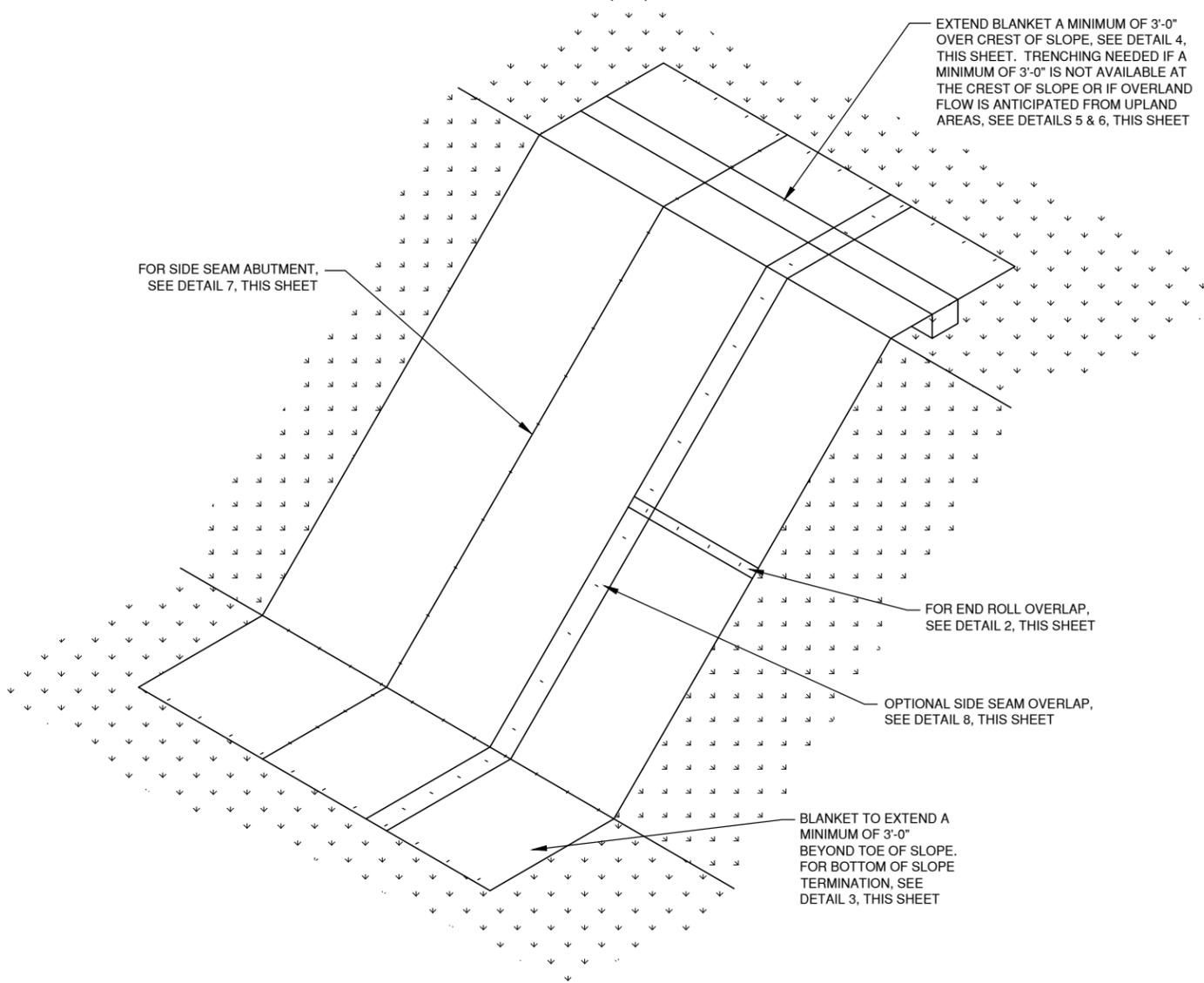
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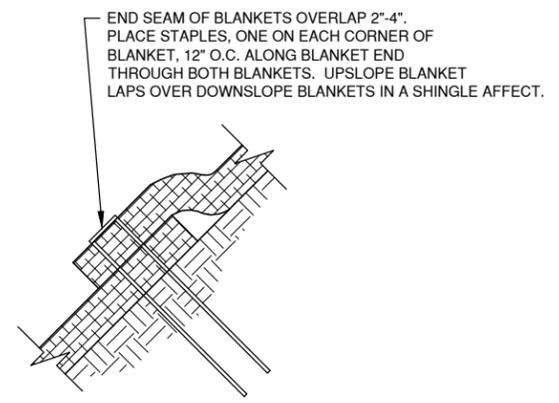
SHEET NO.  
**9**

*CONFORMED PLAN*

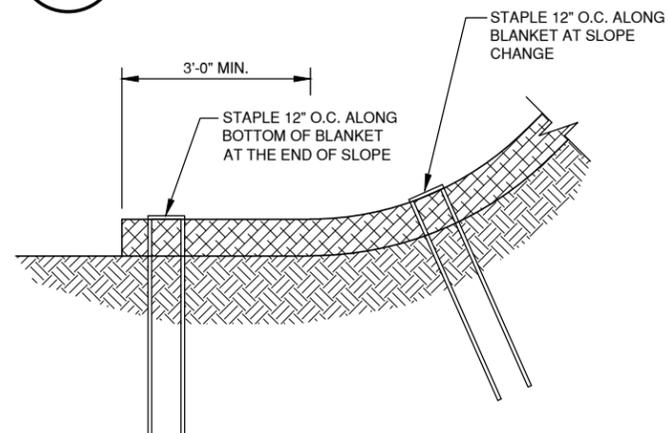
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 PLAN VIEW: PLAN



**SLOPE DETAIL** 1  
VAR.



**END ROLL OVERLAP** 2  
VAR.

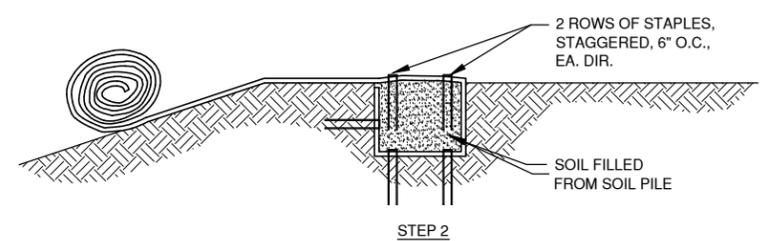
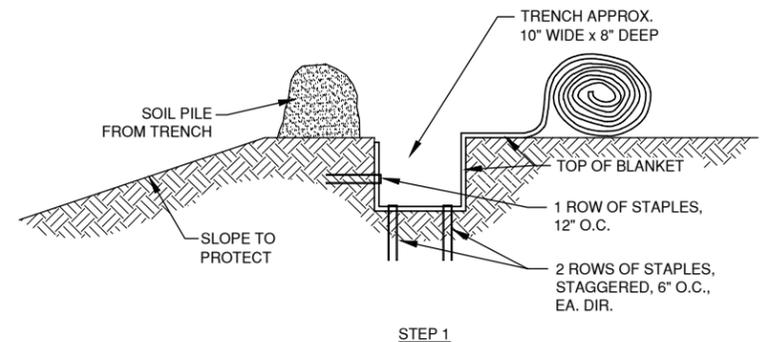


**BOTTOM OF SLOPE TERMINATION** 3  
VAR.

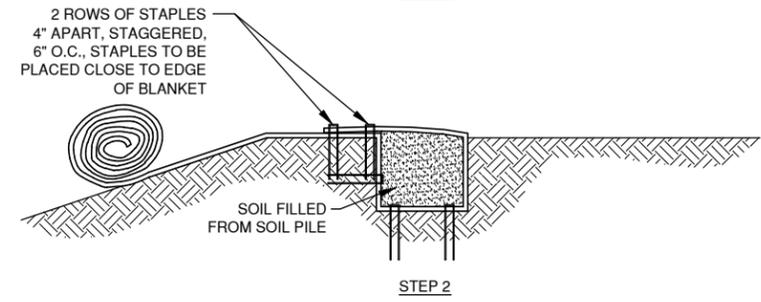
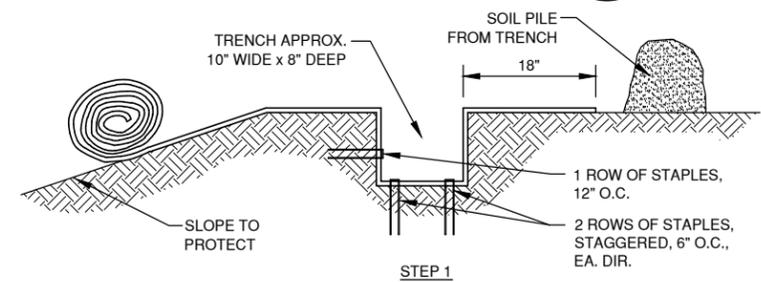


**SLOPE CREST ANCHOR METHOD "A" (NO TRENCH)** 4  
VAR.

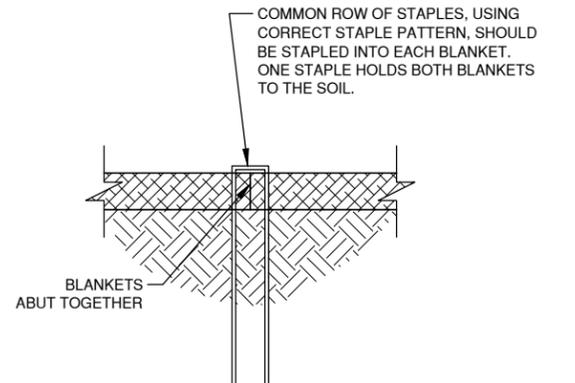
DO NOT NEED TO TRENCH BLANKET IN IF IT CAN BE EXTENDED A MINIMUM OF 3'-0" OVER THE CREST OF THE SLOPE.



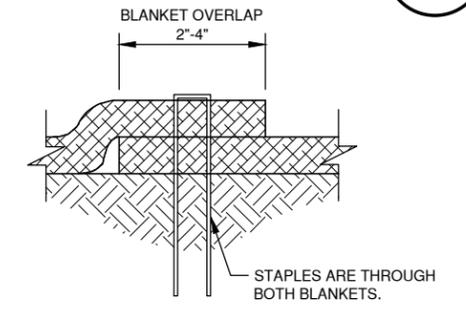
**SLOPE TRENCHING METHOD "B"** 5  
VAR.



**SLOPE TRENCHING METHOD "C"** 6  
VAR.



**SIDE SEAM ABUT STAPLE DETAIL** 7  
VAR.



**SIDE SEAM OVERLAP STAPLE DETAIL** 8  
VAR.

**NOTES:**  
 1. STAPLE PATTERNS ARE DEPENDENT ON SITE CONDITIONS. SEE MANUFACTURER STAPLE PATTERN GUIDE FOR DETAILS.

NO.	DATE	APPROV.	REVISION	NO.	DATE	APPROV.	REVISION

CONTRACT NO. 3775-15-01  
 MENEKAUNEE HARBOR RESTORATION PROJECT  
 CITY OF MARINETTE  
 MARINETT COUNTY, WISCONSIN

EROSION MAT  
 SLOPE APPLICATION DETAILS

DATE: 05/20/15  
 FILE: EROSION MAT  
 JOB NO.: 3775005

**Robert E. Lee & Associates, Inc.**  
 ENGINEERING, SURVEYING, ENVIRONMENTAL SERVICES  
 1250 CENTENNIAL CENTRE BOULEVARD  
 HOBART, WI 54155  
 INTERNET: www.releeinc.com  
 PHONE: (920) 662-9641  
 FAX: (920) 662-9141

SHEET NO.  
**10**

*CONFORMED PLAN*

## **LABELED TAB – ADDENDUM**

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**\*Place labeled tab BEFORE back spec cover.**



**Robert E. Lee & Associates, Inc.**  
Engineering, Surveying and Environmental Services

**Green Bay Office**  
1250 Centennial Centre Blvd  
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WEBSITE: www.releeinc.com

**May 13, 2015**

**CITY OF MARINETTE  
MARINETTE COUNTY, WISCONSIN**

**ADDENDUM NO. 1  
MENEKAUNEE HARBOR RESTORATION PROJECT  
CONTRACT 3775-15-01**

**TO: Prospective Bidders of Contract 3775-15-01**  
**FROM: Robert E. Lee & Associates, Inc.**  
**RE: Specification change**

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Notice is hereby given that the contract documents for the above-referenced project are amended as hereinafter set forth:

**SPECIFICATIONS**

1. Section 00 11 13, Advertisement for Bids, delete the entire 2<sup>nd</sup> paragraph in its entirety. The paragraph begins as follows, .....“This procurement is subject to the Grantee’s policy regarding the increased use of small, minority, and women’s businesses...”

This addendum shall be attached to and form a part of these contract documents. The receipt and examination of this addendum and inclusion as a part of the contract documents shall be acknowledged by the bidder in the space provided in the Bid Form on page 00 41 13-1.

Sincerely,

ROBERT E. LEE & ASSOCIATES, INC.

Jared G. Schmidt, P.E., Principal  
Civil/Municipal Services Manager

JGS/NJM

CC/ENC.: Laura Pavelski, CAD Manager, REL  
Jim Westerman, Survey Asst. Manager, REL

Accepted this \_\_\_\_\_ day of \_\_\_\_\_, 2015.

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Signature

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Name of Firm