RUSH

Contract Routing Form

ROUTING: Urgent Rush printed on: 10/05/2016

==========

Contract between: RG Huston Co Inc
and Dept. or Division: Engineering Division
Name/Phone Number:

Project: Willow Creek Stormwater Treatment 2016

Contract No.: 7330 File No.: 43998
Enactment No.: RES-16-00717 ✓ Enactment Date: 09/22/2016
Dollar Amount: 1,230,808.00 ✓

(Please DATE before routing) Approved + posted in Munis KLS

Signatures Required	Date Received	Date Signed
City Clerk	10-5-16	10-5-16
Director of Civil Rights	10.5.16	10-10-16
Risk Manager	10.10.16	10/10/16 KJB
Finance Director	10.10.16 KLS	10/11/16
City Attorney 1207	10-11-2016	10-12-2016
Mayor	10.12.16	10.12.16

Please return signed Contracts to the City Clerk's Office
Room 103, City-County Building for filing.

Original + 2 Copies

10/05/2016 14:09:56 enjls - Greg Fries, 267-1199; Lauren Striegl 266-4094

RUSH

Dis Rights: OK / (N/A) / Problem - Hold
Prev Wage: (AA) / Agency / No
Contract Value: 1,230,808.00
AA Plan: APPROVED
Amendment / Addendum # _____
Type: POS / Dvlp / Sbdv / Gov't /
Grant / (PW) / Goal / Loan / Agrmt

Sign In

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Details Reports

File #:	43998 Version: 1	Name:	Amending the 2016 Stormwater Utility Capital Budget in the amount of $995,000 and Awarding Public Works Contract No. 7330, Willow Creek Stormwater Treatment 2016.
Type:	Resolution	Status:	Passed
File created:	8/5/2016	In control:	BOARD OF ESTIMATES
On agenda:	9/20/2016	Final action:	9/20/2016
Enactment date:	9/22/2016	Enactment #:	RES-16-00717
Title:	Amending the 2016 Stormwater Utility Capital Budget in the amount of $995,000 and Awarding Public Works Contract No. 7330, Willow Creek Stormwater Treatment 2016.		
Sponsors:	Paul E. Skidmore, Larry Palm		
Attachments:	1. Contract 7330.pdf, 2. BidOpeningTab7330.pdf		

History (5) Text

5 records Group Export

Date	Ver.	Action By	Action	Result	Action Details	Watch
9/20/2016	1	COMMON COUNCIL			Not available	Not available
9/12/2016	1	BOARD OF ESTIMATES	Return to Lead with the Following Recommendation(s)	Pass	Action details	Not available
9/7/2016	1	BOARD OF PUBLIC WORKS			Not available	Not available
9/7/2016	1	BOARD OF PUBLIC WORKS	Refer		Action details	Not available
8/17/2016	1	BOARD OF PUBLIC WORKS	Refer		Action details	Not available

KLS
SJR

PROJECT	CONTRACTOR	AMOUNT OF BID

CONTRACT NO. 7330
WILLOW CREEK STORMWATER TREATMENT 2016

	R. G. HUSTON CO., INC.	$1,230,808.00

Acct. No. 10416-84-174-84500:54445 (91223)	$1,230,808.00
Contingency 8%±	98,462.00
GRAND TOTAL	$1,329,270.00

Wisconsin Office of the Commissioner of Insurance
Active Company Appointment List for Licensee

Agent Information

Licensee Name: DENNIS M BARTON
License Number: 0000283633
NPN: 283633

Report Date: 10/03/2016

Active Appointments

Company Name	Company Number	NAIC Number	License type	LOA	Appointment Date
American Insurance Company, The	110897	21857	INTERMEDIARY (AGENT) INDIVIDUAL	Property	06/08/1987
American Insurance Company, The	110897	21857	INTERMEDIARY (AGENT) INDIVIDUAL	Casualty	06/08/1987
Berkley Insurance Company	111809	32603	INTERMEDIARY (AGENT) INDIVIDUAL	Casualty	07/19/2013
Berkley Regional Insurance Company	110272	29580	INTERMEDIARY (AGENT) INDIVIDUAL	Casualty	03/05/2008
Berkley Regional Insurance Company	110272	29580	INTERMEDIARY (AGENT) INDIVIDUAL	Property	03/05/2008
Capitol Indemnity Corporation	112048	10472	INTERMEDIARY (AGENT) INDIVIDUAL	Casualty	08/29/1994
Capitol Indemnity Corporation	112048	10472	INTERMEDIARY (AGENT) INDIVIDUAL	Property	08/29/1994
Charter Oak Fire Insurance Company, The	111007	25615	INTERMEDIARY (AGENT) INDIVIDUAL	Property	01/13/2006
Charter Oak Fire Insurance Company, The	111007	25615	INTERMEDIARY (AGENT) INDIVIDUAL	Casualty	01/13/2006
Continental Casualty Company	110434	20443	INTERMEDIARY (AGENT) INDIVIDUAL	Casualty	08/27/1993
Continental Casualty Company	110434	20443	INTERMEDIARY (AGENT) INDIVIDUAL	Property	08/27/1993
Fidelity and Deposit Company of Maryland	111700	39306	INTERMEDIARY (AGENT) INDIVIDUAL	Property	09/01/2004
Fidelity and Deposit Company of Maryland	111700	39306	INTERMEDIARY (AGENT) INDIVIDUAL	Casualty	09/01/2004
Guarantee Company of North America USA, The	110939	36650	INTERMEDIARY (AGENT) INDIVIDUAL	Casualty	09/09/2010
Hanover Insurance Company, The	110965	22292	INTERMEDIARY (AGENT) INDIVIDUAL	Property	10/12/2004
Hanover Insurance Company, The	110965	22292	INTERMEDIARY (AGENT) INDIVIDUAL	Casualty	10/12/2004
LM Insurance Corporation	110356	33600	INTERMEDIARY (AGENT) INDIVIDUAL	Casualty	05/20/2009
Liberty Mutual Fire Insurance Company	111439	23035	INTERMEDIARY (AGENT) INDIVIDUAL	Casualty	05/20/2009
Liberty Mutual Insurance Company	111480	23043	INTERMEDIARY (AGENT) INDIVIDUAL	Casualty	05/20/2009
Massachusetts Bay Insurance Company	111649	22306		Property	10/12/2004

			INTERMEDIARY (AGENT) INDIVIDUAL		
Massachusetts Bay Insurance Company	111649	22306	INTERMEDIARY (AGENT) INDIVIDUAL	Casualty	10/12/2004
Old Republic Insurance Company	111620	24147	INTERMEDIARY (AGENT) INDIVIDUAL	Casualty	12/18/1990
Old Republic Insurance Company	111620	24147	INTERMEDIARY (AGENT) INDIVIDUAL	Property	12/18/1990
Old Republic Surety Company	112142	40444	INTERMEDIARY (AGENT) INDIVIDUAL	Property	12/18/1990
Old Republic Surety Company	112142	40444	INTERMEDIARY (AGENT) INDIVIDUAL	Casualty	12/18/1990
Phoenix Insurance Company, The	111008	25623	INTERMEDIARY (AGENT) INDIVIDUAL	Property	01/13/2006
Phoenix Insurance Company, The	111008	25623	INTERMEDIARY (AGENT) INDIVIDUAL	Casualty	01/13/2006
St. Paul Fire and Marine Insurance Company	111945	24767	INTERMEDIARY (AGENT) INDIVIDUAL	Casualty	12/09/1998
St. Paul Fire and Marine Insurance Company	111945	24767	INTERMEDIARY (AGENT) INDIVIDUAL	Property	12/09/1998
Travelers Casualty and Surety Company	111794	19038	INTERMEDIARY (AGENT) INDIVIDUAL	Casualty	06/15/1993
Travelers Casualty and Surety Company	111794	19038	INTERMEDIARY (AGENT) INDIVIDUAL	Property	06/15/1993
Travelers Casualty and Surety Company of America	110846	31194	INTERMEDIARY (AGENT) INDIVIDUAL	Property	06/15/1993
Travelers Casualty and Surety Company of America	110846	31194	INTERMEDIARY (AGENT) INDIVIDUAL	Casualty	06/15/1993
Travelers Home and Marine Insurance Company, The	111583	27998	INTERMEDIARY (AGENT) INDIVIDUAL	Casualty	12/11/2007
Travelers Home and Marine Insurance Company, The	111583	27998	INTERMEDIARY (AGENT) INDIVIDUAL	Property	12/11/2007
Travelers Indemnity Company of America, The	110975	25666	INTERMEDIARY (AGENT) INDIVIDUAL	Casualty	01/13/2006
Travelers Indemnity Company of America, The	110975	25666	INTERMEDIARY (AGENT) INDIVIDUAL	Property	01/13/2006
Travelers Indemnity Company of Connecticut, The	111010	25682	INTERMEDIARY (AGENT) INDIVIDUAL	Casualty	01/13/2006
Travelers Indemnity Company of Connecticut, The	111010	25682	INTERMEDIARY (AGENT) INDIVIDUAL	Property	01/13/2006
Travelers Indemnity Company, The	110911	25658	INTERMEDIARY (AGENT) INDIVIDUAL	Property	01/13/2006
Travelers Indemnity Company, The	110911	25658	INTERMEDIARY (AGENT) INDIVIDUAL	Casualty	01/13/2006
Travelers Property Casualty Company of America	111459	25674	INTERMEDIARY (AGENT) INDIVIDUAL	Property	01/13/2006
Travelers Property Casualty Company of America	111459	25674	INTERMEDIARY (AGENT) INDIVIDUAL	Casualty	01/13/2006
Western Surety Company	111843	13188	INTERMEDIARY (AGENT) INDIVIDUAL	Casualty	10/28/2010

Close

$1,230,808.00
CONTRACTOR'S OFFICE COPY

BID OF R. G. HUSTON CO., INC.

2016

PROPOSAL, CONTRACT, BOND AND SPECIFICATIONS

FOR

WILLOW CREEK STORMWATER TREATMENT 2016

CONTRACT NO. 7330

PROJECT NO. 53W1734

MUNIS NO. 10416

IN

MADISON, DANE COUNTY, WISCONSIN

AWARDED BY THE COMMON COUNCIL
MADISON, WISCONSIN ON **SEPTEMBER 20, 2016**

CITY ENGINEERING DIVISION
1600 EMIL STREET
MADISON, WISCONSIN 53713

https://bidexpress.com/login

WILLOW CREEK STORMWATER TREATMENT 2016
CONTRACT NO. 7330

INDEX

This Proposal, and Agreement have
been prepared by:

CITY ENGINEERING DIVISION
CITY OF MADISON
MADISON, DANE COUNTY, WISCONSIN

Robert F. Phillips, P.E., City Engineer

RFP: jo

SECTION A: ADVERTISEMENT FOR BIDS AND INSTRUCTIONS TO BIDDERS

REQUEST FOR BID FOR PUBLIC WORKS CONSTRUCTION
CITY OF MADISON, WISCONSIN

A BEST VALUE CONTRACTING MUNICIPALITY

PROJECT NAME:	WILLOW CREEK STORMWATER TREATMENT 2016
CONTRACT NO.:	7330
SBE GOAL	7%
BID BOND	5%
PRE BID MEETING (1:00 P.M.)	JULY 29, 2016
PREQUALIFICATION APPLICATION DUE (1:00 P.M)	AUGUST 5, 2016
BID SUBMISSION (1:00 P.M.)	AUGUST 12, 2016
BID OPEN (1:30 P.M.)	AUGUST 12, 2016
PUBLISHED IN WSJ	JULY 29 & AUGUST 5,2016

PRE BID MEETING: Representatives of the Affirmative Action Department will be present to discuss the Small Business Enterprise requirements at 1600 Emil Street, Madison Wisconsin.

PREQUALIFICATION APPLICATION: Forms are available on our website, www.cityofmadison.com/business/pw/forms.cfm. If not currently prequalified in the categories listed in Section A, an amendment to your Prequalification will need to be submitted prior to the same due date. Postmark is not applicable.

BIDS TO BE SUBMITTED by hand to 1600 EMIL ST., MADISON, WI 53713 or online at www.bidexpress.com.

THE BID OPENING is at 1600 EMIL ST., MADISON, WI 53713.

STANDARD SPECIFICATIONS

The City of Madison's Standard Specifications for Public Works Construction - 2016 Edition, as supplemented and amended from time to time, forms a part of these contract documents as if attached hereto.

These standard specifications are available on the City of Madison Public Works website, www.cityofmadison.com/Business/PW/specs.cfm.

The Contractor shall review these Specifications prior to preparation of proposals for the work to be done under this contract, with specific attention to Article 102, "BIDDING REQUIREMENTS AND CONDITIONS" and Article 103, "AWARD AND EXECUTION OF THE CONTRACT." For the convenience of the bidder, below are highlights of three subsections of the specifications.

SECTION 102.1: PRE-QUALIFICATION OF BIDDERS

In accordance with Wisconsin State Statutes 66.0901 (2) and (3), all bidders must submit to the Board of Public Works proof of responsibility on forms furnished by the City. The City requires that all bidders be qualified on a biennial basis.

Bidders must present satisfactory evidence that they have been regularly engaged in the type of work specified herein and they are fully prepared with necessary capital, materials, machinery and supervisory personnel to conduct the work to be contracted for to the satisfaction of the City. All bidders must be pre-qualified by the Board of Public Works for the type of construction on which they are bidding prior to the opening of the bid.

In accordance with Section 39.02(9)(a)l. of the General Ordinances, all bidders shall submit in writing to the Affirmative Action Division Manager of the City of Madison, a Certificate of Compliance or an Affirmative Action Plan at the same time or prior to the submission of the proof of responsibility forms.

The bidder shall be disqualified if the bidder fails to or refuses to, prior to opening of the bid, submit a Certificate of compliance, Affirmative Action Plan or Affirmative Action Data Update, as applicable, as defined by Section 39.02 of the General Ordinances (entitled Affirmative Action) and as required by Section 102.11 of the Standard Specifications.

SECTION 102.4 PROPOSAL

No bid will be accepted that does not contain an adequate or reasonable price for each and every item named in the Schedule of Unit Prices.

A lump sum bid for the work in accordance with the plans and specifications is required. The lump sum bid must be the same as the total amounts bid for the various items and it shall be inserted in the space provided.

All papers bound with or attached to the proposal form are considered a part thereof and must not be detached or altered when the proposal is submitted. The plans, specifications and other documents designated in the proposal form will be considered a part of the proposal whether attached or not.

A proposal submitted by an individual shall be signed by the bidder or by a duly authorized agent. A proposal submitted by a partnership shall be signed by a member/partner or by a duly authorized agent thereof. A proposal submitted by a corporation shall be signed by an authorized officer or duly authorized registered agent of such corporation, and the proposal shall show the name of the State under the laws of which such corporation was chartered. The required signatures shall in all cases appear in the space provided thereof on the proposal.

Each proposal shall be placed, together with the proposal guaranty, in a sealed envelope, so marked as to indicate name of project, the contract number or option to which it applies, and the name and address of the Contractor or submitted electronically through Bid Express (www.bidexpress.com). Proposals will be accepted at the location, the time and the date designated in the advertisement. Proposals received after the time and date designated will be returned to the bidder unopened.

The Bidder shall execute the Disclosure of Ownership form. REFER TO SECTION F.

SECTION 102.5: BID DEPOSIT (PROPOSAL GUARANTY)

All bids, sealed or electronic, must be accompanied with a Bid Bond equal to at least 5% of the bid or a Certificate of Annual/Biennial Bid Bond or certified check, payable to the City Treasurer. Bid deposit of the successful bidders shall be returned within forty-eight (48) hours following execution of the contract and bond as required.

PREVAILING WAGE RATES

Prevailing Wage Rates may be required and are attached in Section J of the contract. See Special Provisions to determine applicability.

MINOR DISCREPENCIES

Bidder is responsible for submitting all forms necessary for the City to determine compliance with State and City bidding requirements. Nothwithstanding any language to the contrary contained herein, the City may exercise its discretion to allow bidders to correct or supplement submissions after bid opening, if the minor discrepancy, bid irregularity or omission is insignificant and not one related to price, quality, quantity, time of completion or performance of the contract.

Bidders for this Contract(s) must be Pre-Qualified for at least one of the following type(s) of construction denoted by an ☒

Building Demolition

101 ☐ Asbestos Removal
120 ☐ House Mover
110 ☐ Building Demolition

Street, Utility and Site Construction

201 ☐ Asphalt Paving
205 ☐ Blasting
210 ☐ Boring/Pipe Jacking
215 ☐ Concrete Paving
220 ☐ Con. Sidewalk/Curb & Gutter/Misc. Flat Work
221 ☐ Concrete Bases and Other Concrete Work
222 ☐ Concrete Removal
225 ☒ Dredging
230 ☐ Fencing
235 ☐ Fiber Optic Cable/Conduit Installation
240 ☒ Grading and Earthwork
241 ☐ Horizontal Saw Cutting of Sidewalk
242 ☐ Infrared Seamless Patching
245 ☐ Landscaping, Maintenance
250 ☐ Landscaping, Site and Street
251 ☐ Parking Ramp Maintenance
252 ☐ Pavement Marking
255 ☐ Pavement Sealcoating and Crack Sealing
260 ☐ Petroleum Above/Below Ground Storage Tank Removal/Installation
262 ☐ Playground Installer
265 ☐ Retaining Walls, Precast Modular Units
270 ☒ Retaining Walls, Reinforced Concrete
275 ☒ Sanitary, Storm Sewer and Water Main Construction
276 ☐ Sawcutting
280 ☐ Sewer Lateral Drain Cleaning/Internal TV Insp.
285 ☐ Sewer Lining
290 ☐ Sewer Pipe Bursting
295 ☐ Soil Borings
300 ☐ Soil Nailing
305 ☐ Storm & Sanitary Sewer Laterals & Water Svc.
310 ☐ Street Construction
315 ☐ Street Lighting
318 ☐ Tennis Court Resurfacing
320 ☐ Traffic Signals
325 ☐ Traffic Signing & Marking
332 ☐ Tree pruning/removal
333 ☐ Tree, pesticide treatment of
335 ☐ Trucking
340 ☐ Utility Transmission Lines including Natural Gas, Electrical & Communications
399 ☐ Other_____

Bridge Construction

501 ☐ Bridge Construction and/or Repair

Building Construction

401 ☐ Floor Covering (including carpet, ceramic tile installation, rubber, VCT
402 ☐ Building Automation Systems
403 ☐ Concrete
404 ☐ Doors and Windows
405 ☐ Electrical - Power, Lighting & Communications
410 ☐ Elevator - Lifts
412 ☐ Fire Suppression
413 ☐ Furnishings - Furniture and Window Treatments
415 ☐ General Building Construction, Equal or Less than $250,000
420 ☐ General Building Construction, $250,000 to $1,500,000
425 ☐ General Building Construction, Over $1,500,000
428 ☐ Glass and/or Glazing
429 ☐ Hazardous Material Removal
430 ☐ Heating, Ventilating and Air Conditioning (HVAC)
433 ☐ Insulation - Thermal
435 ☐ Masonry/Tuck pointing
437 ☐ Metals
440 ☐ Painting and Wallcovering
445 ☐ Plumbing
450 ☐ Pump Repair
455 ☐ Pump Systems
460 ☐ Roofing and Moisture Protection
464 ☐ Tower Crane Operator
461 ☐ Solar Photovoltaic/Hot Water Systems
465 ☐ Soil/Groundwater Remediation
466 ☐ Warning Sirens
470 ☐ Water Supply Elevated Tanks
475 ☐ Water Supply Wells
480 ☐ Wood, Plastics & Composites - Structural & Architectural
499 ☐ Other_____

State of Wisconsin Certifications

1 ☐ Class 5 Blaster - Blasting Operations and Activities 2500 feet and closer to inhabited buildings for quarries, open pits and road cuts.
2 ☐ Class 6 Blaster - Blasting Operations and Activities 2500 feet and closer to inhabited buildings for trenches, site excavations, basements, underwater demolition, underground excavations, or structures 15 feet or less in height.
3 ☐ Class 7 Blaster - Blasting Operations and Activities for structures greater than 15 ' in height, bridges, towers, and any of the objects or purposes listed as "Class 5 Blaster or Class 6 Blaster".
4 ☐ Petroleum Above/Below Ground Storage Tank Removal and Installation (Attach copies of State Certifications.)
5 ☐ Hazardous Material Removal (Contractor to be certified for asbestos and lead abatement per the Wisconsin Department of Health Services, Asbestos and Lead Section (A&LS).) See the following link for application: www.dhs.wisconsin.gov/Asbestos/Cert. State of Wisconsin Performance of Asbestos Abatement Certificate must be attached.
6 ☐ Certification number as a Certified Arborist or Certified Tree Worker as administered by the International Society of Arboriculture
7 ☐ Pesticide application (Certification for Commercial Applicator For Hire with the certification in the category of turf and landscape (3.0) and possess a current license issued by the DATCP)
8 ☐ State of Wisconsin Master Plumbers License.

SECTION B: PROPOSAL

Please refer to the Bid Express Website at https://bidexpress.com look up contract number and go to Section B: Proposal Page

You can access all City of Madison bid solicitations for FREE at www.bidexpress.com

Click on the "Register for Free" button and follow the instructions to register your company and yourself. You will be asked for a payment subscription preference, since you may wish to bid online someday. Simply choose the method to pay on a 'per bid' basis. This requires no payment until / unless you actually bid online. You can also choose the monthly subscription plan at this time. You will, however, be asked to provide payment information. Remember, you can change your preference at anytime. You will then be able to complete your free registration and have full access to the site. Your free access does not require completion of the 'Digital ID' process, so you will have instant access for viewing and downloading. To be prepared in case you ever do wish to bid online, you may wish to establish your digital ID also, since you cannot bid without a Digital ID.

If you have any problems with the free registration process, you can call the bidexpress help team, toll free at 1-888-352-2439 (option 1, option1).

SECTION C: SMALL BUSINESS ENTERPRISE

Instructions to Bidders
City of Madison
SBE Program Information

2 Small Business Enterprise (SBE) Program Information

2.1 Policy and Goal

The City of Madison reaffirms its policy of nondiscrimination in the conduct of City business by maintaining a procurement process which remains open to all who have the potential and ability to sell goods and services to the City. It is the policy of the City of Madison to allow Small Business Enterprises (SBE) maximum feasible opportunity to participate in City of Madison contracting. The bidder acknowledges that its bid has been submitted in accordance with the SBE program and is for the public's protection and welfare.

Please refer to the "ADVERTISEMENT FOR BIDS" for the goal for the utilization of SBEs on this project. SBEs may participate as subcontractors, vendors and/or suppliers, which provide a commercially useful function. The dollar value for SBE suppliers or 'materials only' vendors shall be discounted to 60% for purposes of meeting SBE goals.

A bidder which achieves or exceeds the SBE goal will be in compliance with the SBE requirements of this project. In the event that the bidder is unable to achieve the SBE goal, the bidder must demonstrate that a good faith effort to do so was made. Failure to either achieve the goal or demonstrate a good faith effort to do so will be grounds for the bidder being deemed a non-responsible contractor ineligible for award of this contract.

A bidder may count towards its attainment of the SBE goal only those expenditures to SBEs that perform a commercially useful function. For purposes of evaluating a bidder's responsiveness to the attainment of the SBE goal, the contract participation by an SBE is based on the percentage of the total base bid proposed by the Contractor. The total base bid price is inclusive of all addenda.

Work performed by an SBE firm in a particular transaction can be counted toward the goal only if it involves a commercially useful function. That is, in light of industry practices and other relevant considerations, does the SBE firm have a necessary and useful role in the transaction, of a kind for which there is a market outside the context of the SBE Program, or is the firm's role a superfluous step added in an attempt to obtain credit towards goals? If, in the judgment of the Affirmative Action Division, the SBE firm will not perform a commercially useful function in the transaction, no credit towards goals will be awarded.

The question of whether a firm is performing a commercially useful function is completely separate from the question of whether the firm is an eligible SBE. A firm is eligible if it meets the definitional criteria and ownership and control requirements, as set forth in the City of Madison's SBE Program.

If the City of Madison determines that the SBE firm is performing a commercially useful function, then the City of Madison must then decide what that function is. If the commercially useful function is that of an SBE vendor / supplier that regularly transacts business with the respective product, then the City of Madison will count 60% of the value of the product supplied toward SBE goals.

To be counted, the SBE vendor / supplier must be engaged in selling the product in question to the public. This is important in distinguishing an SBE vendor / supplier, which has a regular trade with a variety of customers, from a firm which performs supplier-like functions on an ad hoc basis or for only one or two contractors with whom it has a special relationship.

A supplier of bulk goods may qualify as an eligible SBE vendor / supplier if it either maintains an inventory or owns or operates distribution equipment. With respect to the distribution equipment; e.g., a fleet of trucks, the term "operates" is intended to cover a situation in which the supplier leases the equipment on a regular basis for its entire business. It is not intended to cover a situation in which the firm simply provides drivers for trucks owned or leased by another party; e.g., a prime contractor, or leases such a party's trucks on an ad hoc basis for a specific job.

If the commercially useful function being performed is not that of a qualified SBE vendor / supplier, but rather that of delivery of products, obtaining bonding or insurance, procurement of personnel, acting as a broker or manufacturer's representative in the procurement of supplies, facilities, or materials, etc., only the fees or commissions will apply towards the goal.

For example, a business that simply transfers title of a product from manufacturer to ultimate purchaser; e. g., a sales representative who re-invoices a steel product from the steel company to the Contractor, or a firm that puts a product into a container for delivery would not be considered a qualified SBE vendor / supplier. The Contractor would not receive credit based on a percentage of the cost of the product for working with such firms.

Concerning the use of services that help the Contractor obtain needed supplies, personnel, materials or equipment to perform a contract: only the fee received by the service provider will be counted toward the goal. For example, use of a SBE sales representative or distributor for a steel company, if performing a commercially useful function at all, would entitle the Contractor receiving the steel to count only the fee paid to the representative or distributor toward the goal. This provision would also govern fees for professional and other services obtained expressly and solely to perform work relating to a specific contract.

Concerning transportation or delivery services: if an SBE trucking company picks up a product from a manufacturer or a qualified vendor / supplier and delivers the product to the Contractor, the commercially useful function it is performing is not that of a supplier, but simply that of a transporter of goods. Unless the trucking company is itself the manufacturer or a qualified vendor / supplier in the product, credit cannot be given based on a percentage of the cost of the product. Rather, credit would be allowed for the cost of the transportation service.

The City is aware that the rule's language does not explicitly mention every kind of business that may contribute work on this project. In administering these programs, the City would, on a case-by-case basis, determine the appropriate counting formula to apply in a particular situation.

2.2 Contract Compliance

Questions concerning the SBE Program shall be directed to the Contract Compliance Officer of the City of Madison Department of Civil Rights, Affirmative Action Division, 210 Martin Luther King, Jr. Blvd., Room 523, Madison, WI 53703; telephone (608) 266-4910.

2.3 Certification of SBE by City of Madison

The Affirmative Action Division maintains a directory of SBEs which are currently certified as such by the City of Madison. Contact the Contract Compliance Officer as indicated in Section 2.2 to receive a copy of the SBE Directory or you may access the SBE Directory online at www.cityofmadison.com/dcr/aaTBDir.cfm.

All contractors, subcontractors, vendors and suppliers seeking SBE status must complete and submit the **Targeted Business Certification Application** to the City of Madison Affirmative Action Division by the time and date established for receipt of bids. A copy of the Targeted Business Certification Application is available by contacting the Contract Compliance Officer at the address and telephone indicated in Section 2.2 or you may access the Targeted Business Certification Application online at www.cityofmadison.com/dcr/aaTBDir.cfm. Submittal of the Targeted Business Certification Application by the time specified does not guarantee that the applicant will be certified as a SBE eligible to be utilized towards meeting the SBE goal for this project.

2.4 Small Business Enterprise Compliance Report

2.4.1 Good Faith Efforts

Bidders shall take all necessary affirmative steps to assure that SBEs are utilized when possible and that the established SBE goal for this project is achieved. A contractor who self performs a portion of the work, and is pre-qualified to perform that category of work, may subcontract that portion of the work, but shall not be required to do so. When a bidder is unable to achieve the established SBE goal, the bidder must demonstrate that a good faith effort to do so was made. Such a good faith effort should include the following:

2.4.1.1 Attendance at the pre-bid meeting.

2.4.1.2 Using the City of Madison's directory of certified SBEs to identify SBEs from which to solicit bids.

2.4.1.3 Assuring that SBEs are solicited whenever they are potential sources.

2.4.1.4 Referring prospective SBEs to the City of Madison Affirmative Action Division for certification.

2.4.1.5 Dividing total project requirements into smaller tasks and/or quantities, where economically feasible, to permit maximum feasible SBE participation.

2.4.1.6 Establishing delivery schedules, where requirements permit, which will encourage participation by SBEs.

2.4.1.7 Providing SBEs with specific information regarding the work to be performed.

2.4.1.8 Contacting SBEs in advance of the deadline to allow such businesses sufficient time to prepare a bid.

2.4.1.9 Utilizing the bid of a qualified and competent SBE when the bid of such a business is deemed reasonable (i.e. 5% above the lowest bidder), although not necessarily low.

2.4.1.10 Contacting SBEs which submit a bid, to inquire about the details of the bid and confirm that the scope of the work was interpreted as intended.

2.4.1.11 Completion of Cover Page (page C-6), Summary Sheet (page C-7) and SBE Contact Reports (pages C-8 and C9) if applicable.

2.4.2 **Reporting SBE Utilization and Good Faith Efforts**

The Small Business Enterprise Compliance Report is to be submitted by the bidder with the bid: This report is due by the specified bid closing time and date. Bids submitted without a completed SBE Compliance Report as outlined below may be deemed non-responsible and the bidder ineligible for award of this contract. Nothwithstanding any language to the contrary contained herein, the City may exercise its discretion to allow bidders to correct or supplement submissions after bid opening, if the minor discrepancy, bid irregularity or omission is insignificant and not one related to price, quality, quantity, time of completion, performance of the contract, or percentage of SBE utilization.

2.4.2.1 If the Bidder meets or exceeds the goal established for SBE utilization, the Small Business Enterprise Compliance Report shall consist of the following:

2.4.2.1.1 **Cover Page,** Page C-6; and
2.4.2.1.2 **Summary Sheet,** C-7.

2.4.2.2 If the bidder does not meet the goal established for SBE utilization, the Small Business Enterprise Compliance Report shall consist of the following:

2.4.2.2.1 **Cover Page,** Page C-6;
2.4.2.2.2 **Summary Sheet,** C-7; and
2.4.2.2.3 **SBE Contact Report,** C-8 and C-9. (A separate Contact Report must be completed for each applicable SBE which is not utilized.)

2.5 Appeal Procedure

A bidder which does not achieve the established goal and is found non-responsible for failure to demonstrate a good faith effort to achieve such goal and subsequently denied eligibility for award of contract may appeal that decision to the Small Business Enterprises Appeals Committee. All appeals shall be made in writing, and shall be delivered to and received by the City Engineer no later than 4:30 PM on the third business day following the bidder's receipt of the written notification of ineligibility by the Affirmative Action Division Manager. Postmark not acceptable. The notice of appeal shall state the basis for the appeal of the decision of the Affirmative Action Division Manager. The Appeal shall take place in accordance with Madison General Ordinance 33.54.

2.6 SBE Requirements After Award of the Contract

The successful bidder shall identify SBE subcontractors, suppliers and vendors on the subcontractor list in accordance with the specifications. The Contractor shall submit a detailed explanation of any variances between the listing of SBE subcontractors, vendors and/or suppliers on the subcontractor list and the Contractor's SBE Compliance Report for SBE participation.

No change in SBE subcontractors, vendors and/or suppliers from those SBEs indicated in the SBE Compliance Report will be allowed without prior approval from the Engineer and the Affirmative Action Division. The contractor shall submit in writing to the City of Madison Affirmative Action Division a request to change any SBE citing specific reasons which necessitate such a change. The Affirmative Action Division will use a general test of reasonableness in approving or rejecting the contractor's request for change. If the request is approved, the Contractor will make every effort to utilize another SBE if available.

The City will monitor the project to ensure that the actual percentage commitment to SBE firms is carried out.

2.7 SBE Definition and Eligibility Guidelines

A Small Business Enterprise is a business concern awarded certification by the City of Madison. For the purposes of this program a Small Business Enterprise is defined as:

A. An independent business operated under a single management. The business may not be a subsidiary of any other business and the stock or ownership may not be held by any individual or any business operating in the same or a similar field. In determining whether an entity qualifies as a SBE, the City shall consider all factors relevant to being an independent business including, but not limited to, the date the business was established, adequacy of its resources for the work in which it proposes to involve itself, the degree to which financial, equipment leasing and other relationships exist with other ineligible firms in the same or similar lines of work. SBE owner(s) shall enjoy the customary incidents of ownership and shall share in the risks and profits commensurate with their enjoyment interests, as demonstrated by an examination of the substance rather than form or arrangements that may be reflected in its ownership documents.

B. A business that has averaged no more than $4.0 million in annual gross receipts over the prior three year period and the principal owner(s) do not have a personal net worth in excess of $1.32 million.

Firm and/or individuals that submit fraudulent documents/testimony may be barred from doing business with the City and/or forfeit existing contracts.

SBE certification is valid for one (1) year unless revoked.

SECTION D: SPECIAL PROVISIONS

WILLOW CREEK STORMWATER TREATMENT 2016
CONTRACT NO. 7330

It is the intent of these Special Provisions to set forth the final contractual intent as to the matter involved and shall prevail over the Standard Specifications and plans whenever in conflict therewith. In order that comparisons between the Special Provisions can be readily made, the numbering system for the Special Provisions is equivalent to that of the Specifications.

Whenever in these Specifications the term "Standard Specifications" appears, it shall be taken to refer to the City of Madison Standard Specifications for Public Works Construction and Supplements thereto.

SECTION 102.9: BIDDER'S UNDERSTANDING

Tax Exempt Status: Effective with all contracts executed after January 1, 2016, the sales price from the sale, storage, use or other consumption of tangible personal property that is used in conjunction with a public works improvement for a tax exempt entity (including the City of Madison), is exempt from State sales tax. Said property must become a component of the project owned by the tax exempt entity and includes: any building; shelter; parking lot; parking garage; athletic field; storm sewer; water supply system; or sewerage and waste water treatment facility, but does not include a highway, street or road.

The contractor shall ensure that the exemption for sales and use tax available under Wis. Stat. Sec. 77.54(9m) applies where available. The contractor shall provide all necessary documentation as required by the State of Wisconsin and the City of Madison to comply with this exemption.

In addition to the City of Madison Standard Specifications, contractor shall observe the following:

In the preparation of Drawings and Specifications, Strand Associates, Inc.® relied upon the following reports of explorations and tests of subsurface conditions at the Site which are included as part of the Special Provisions. The Contractor shall be expected to understand and comply with the "Technical Specifications" which begin on page D-24, and be aware of the known soil conditions report beginning on page D-58.

Report dated April 14, 2016, prepared by CGC, Inc., of Madison, Wisconsin, entitled: Geotechnical Exploration Report - Willow Creek Basin Dewatering, Madison, Wisconsin, consisting of 28 pages.

The technical data in the above report, upon which Contractor may rely, consists of boring methods, level of subsurface water, boring logs, laboratory test methods and results, and boring locations all as of the date made.

Engineer accepts no responsibility for accuracy of the soil data or water level information. Soil borings and report, included with these Contract Documents, were not obtained for the purposes of designing excavations and trenches. Soils information was used by Strand Associates, Inc.® for design purposes of new structures only. Contractor shall assure itself by personal examination as to subsurface conditions and shall provide its own investigations and make its own assumptions to comply with OSHA and any other applicable laws and regulations regarding excavation and trenching requirements.

SECTION 102.10: PREVAILING WAGE

For this project, payment of prevailing wages (white sheet) shall be required unless the box indicating prevailing wages are not required is checked below.

☐ Prevailing wages shall not be required when this box is checked.

If prevailing wages (white sheets) are required, the wages and benefits paid on the contract shall not be less than those specified in the Prevailing Wage Determination included with these contract documents for the following types of work:

☐ Building or Heavy Construction
☒ Sewer, Water, or Tunnel Construction
☒ Local Street or Miscellaneous Paving Construction
☐ Residential or Agricultural Construction

When multiple boxes are checked, worker's wages may vary according to the type and area of work performed. It is the responsibility of the Contractor to determine and apply the appropriate wage rate for the specific work assigned.

SECTION 102.12: BEST VALUE CONTRACTING

This Contract shall be considered a Best Value Contract if the Contractor's bid is equal to or greater than $56,500 for a single trade contract; or equal to or greater than $277,000 for a multi-trade contract pursuant to MGO 33.07(7).

ARTICLE 101 DEFINITIONS AND TERMS

In addition to the City of Madison Standard Specifications, contractor shall observe the following:

Relationship between the City and Strand Associates, Inc.®
Strand Associates, Inc.® has been hired by the City to prepare drawings and specifications for this project. Additionally, Strand will assist the City by providing shop drawing review and responding to questions that may arise during construction. The City will provide resident engineering services and contract administration and is referred to as the City and/or Engineer in the Contract Documents.

Strand Associates, Inc.® will not supervise, direct, control or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or safety precautions and programs incidental thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the furnishing or performance of the Work. Strand Associates, Inc.® will not be responsible for Contractor's failure to perform or furnish the Work in accordance with the Contract Documents. Strand Associates, Inc.® will not be responsible for the acts or omissions of Contractor or of any subcontractor, any supplier, or of any person or organization performing or furnishing any of the Work.

During construction, the duties and responsibilities of Strand Associates, Inc.® include the following:

1. Attend one preconstruction meeting with Engineer and Contractor.

2. Review Contractor product submittals.

3. Report to Engineer when clarifications and interpretations of the Contract Documents are needed. Consider, evaluate, and report to Engineer, Contractor's requests for modification.

Strand Associates, Inc.® shall not:

1. Authorize any deviation from the Contract Documents or substitutions of materials or equipment.

2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.

3. Undertake any of the responsibilities of Contractor, Subcontractor, Suppliers or Contractor's superintendent.

4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences, or procedures of construction.

5. Advise on, issue directions regarding, or assume control over safety precautions and programs in connection with the Work.

6. Accept shop drawing or sample submittals from anyone other than Contractor.

7. Authorize the City to occupy the Project in whole or in part.

8. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.

SECTION 102.14 BAN THE BOX – ARREST AND CRIMINAL BACKGROUND CHECKS (SEC. 39.08, MGO)

This provision applies to all prime contractors on contracts entered into on or after January 1, 2016, and all subcontractors who are required to meet prequalification requirements under MGO 33.07(7)(I), MGO as of the first time they seek or renew pre-qualification status on or after January 1, 2016. The City will monitor compliance of subcontractors through the pre-qualification process.

A. **Definitions.** For purposes of this section, "Arrest and Conviction Record" includes, but is not limited to, information indicating that a person has been questioned, apprehended, taken into custody or detention, held for investigation, arrested, charged with, indicted or tried for any felony, misdemeanor or other offense pursuant to any law enforcement or military authority.

"Conviction record" includes, but is not limited to, information indicating that a person has been convicted of a felony, misdemeanor or other offense, placed on probation, fined, imprisoned or paroled pursuant to any law enforcement or military authority.

"Background Check" means the process of checking an applicant's arrest and conviction record, through any means.

B. **Requirements**. For the duration of this Contract, the Contractor shall:

1. Remove from all job application forms any questions, check boxes, or other inquiries regarding an applicant's arrest and conviction record, as defined herein.
2. Refrain from asking an applicant in any manner about their arrest or conviction record until after conditional offer of employment is made to the applicant in question.
3. Refrain from conducting a formal or informal background check or making any other inquiry using any privately or publicly available means of obtaining the arrest or conviction record of an applicant until after a conditional offer of employment is made to the applicant in question.
4. Make information about this ordinance available to applicants and existing employees, and post notices in prominent locations at the workplace with information about the ordinance and complaint procedure using language provided by the City.
5. Comply with all other provisions of Sec. 39.08, MGO.

C. **Exemptions:** This section shall not apply when:

1. Hiring for a position where certain convictions or violations are a bar to employment in that position under applicable law, or
2. Hiring a position for which information about criminal or arrest record, or a background check is required by law to be performed at a time or in a manner that would otherwise be prohibited by this ordinance, including a licensed trade or profession where the licensing authority explicitly authorizes or requires the inquiry in question.

To be exempt, Contractor has the burden of demonstrating that there is an applicable law or regulation that requires the hiring practice in question, if so, the contractor is exempt from all of the requirements of this ordinance for the position(s) in question.

ARTICLE 104 SCOPE OF WORK

This project includes the dredging of 1500 cubic yards of sediment from and re-grading of the channel shoreline along 200 lineal feet of Willow Creek; installation of a 16" steel-reinforced concrete channel with an entry ramp and downstream weir; stabilization of exposed creek slopes using encapsulated soil lifts and native shrubs and grasses; and installation of a 60' length of 72"x120" concrete box culvert.

The Contractor shall view the site prior to bidding to become familiar with the existing conditions. It will be the responsibility of the Contractor to coordinate with the utilities located in the right of way to resolve conflicts during the construction process.

SECTION 105.1 AUTHORITY OF THE ENGINEER

The Engineer shall resolve all questions which arise as to the quality and acceptability of materials furnished, work performed, manner of performance, rate of progress of the work, interpretation of the plans and Specifications, acceptable fulfillment of the contract, compensation, and disputes and mutual rights between Contractors under the Specifications. The Engineer shall determine the amount and quantity of work performed and materials furnished.

All decisions of the Engineer shall, when so requested, be rendered in writing. They shall be final and conclusive in all matters unless within ten (10) days after such decision the Contractor applies in writing to the Board of Public Works for a review of such decision.

Any change proposed by a Contractor in SBE subcontractors, vendors or suppliers from those SBEs indicated on the SBE Compliance Report must be approved by the Engineer and the City's Manager of the Affirmative Action Division (hereafter, AAD). When requested, such decision shall be rendered in writing. Such decisions shall be final and conclusive in all matters unless within ten (10) days after such decision the Contractor or the affected SBE applies in writing to the Board of Public Works for a review of such decision.

In the event the Engineer and the AAD disagree over the proper decision to be made regarding an SBE, the Mayor shall appoint a third person to resolve the disagreement, within 30 days of appointment. The decision thus rendered may be reviewed by the Board of Public Works upon request of the Contractor or the affected SBE as set forth in Sections 105.1 and 105.2 of the City's standard specifications.

SECTION 105.12 COOPERATION BY THE CONTRACTOR

The Contractor shall use care around existing trees, plantings, fences, walls, steps and driveways that are indicated on the plans to remain. Damage to these items during construction shall be repaired or replaced at the Contractor's expense. No trees, other than those shown on the plan to be removed, shall be cut without the approval of the Engineer and the City Forester; the abutting property owners shall be notified in accordance with the City's Administrative Procedure Memorandum No. 6-2.

The Contractor shall follow actions outlined in Section 107.7, Maintenance of Traffic.

Any damage caused to City or private property by the storage of materials or equipment will be repaired by the Contractor incidental to the contract.

All curb and gutter, except as indicated on the plan set, shall be protected on Herrick Drive. Damaged curb and gutter shall be replaced by Contractor at their cost incidental to the contract.

SECTION 105.13 ORDER OF COMPLETION

In addition to the City of Madison Standard Specifications, contractor shall observe the following:

The order of doing the work is subject to the review of the City. Prior to beginning construction, the Contractor shall submit to the City a detailed construction schedule showing the sequence and anticipated dates of all construction operations, as well as a Staging/Phasing Plan for approval by the City. The sequence of scheduled operations may be modified the City to accommodate specific needs.

SECTION 106.6 SUBSTITUTE MATERIALS

In addition to the City of Madison Standard Specifications, contractor shall observe the following:

Whenever in any of the Contract Documents an article or material is defined by describing a proprietary product, or by using the name of a manufacturer or vendor, the term "or equal," if not inserted, shall be implied. The specific article or material mentioned shall be understood as indicating the type, function, minimum standard of design, efficiency, and quality desired, and shall not be construed in such a manner as to exclude manufacturer's products of comparable quality, design and efficiency. If Contractor wishes to furnish or use a proposed substitute, he shall make written application to Strand Associates, Inc.®, for approval of such a substitute certifying, in writing, that the proposed substitute will perform adequately the functions called for by the general design, be similar and of equal substance to that specified and be suited to the same use and capable of performing the same function as that specified; stating whether or not its incorporation in or use in connection with the project is subject to the payment of any license fee or royalty; and identifying all variations of the proposed substitute from that specified and indicating available maintenance service. No substitute shall be ordered or installed without the written approval of Strand Associates, Inc.®, who will be the judge of equality and may require Contractor to furnish such other data about the proposed substitute as he considers pertinent. No substitute shall be ordered or installed without such performance guarantee and bonds as the City may require which shall be furnished at Contractor's expense.

SECTION 107.7 MAINTENANCE OF TRAFFIC

All signing and barricading shall conform to Part VI of the Federal Highways Administration's "Manual on Uniform Traffic Control Devices" (MUTCD), the State of Wisconsin Standard Facilities Development Manual (including Chapter 16 – Standard Detail Drawings), and the City of Madison Standards for sidewalk and bikeway closures.

The Contractor shall submit an acceptable Traffic Control Plan to the office of the City Traffic Engineer, a minimum of five (5) working days, prior to the pre-construction meeting. The Traffic Control Plan shall include any necessary detour routes, signing and phasing schedule with the dates of lane closures. The Traffic Engineering Division will assist the contractor in determining acceptable lane closures and detours (if needed), if the preliminary Traffic control plan is submitted to the office of the City Traffic Engineer at least ten (10) working days prior to the pre-construction meeting.

The Contractor may remove parking within the projects limits as necessary to facilitate construction. The Contractor shall be responsible for posting and maintaining NO PARKING signs in accordance with City of Madison Police Department's "Guidelines for Temporary No Parking Restrictions for Construction or Special Events."

No construction equipment or materials shall be stored in the roadway or street right-of-way that is open to traffic during non-working hours. Construction equipment and materials are not to be stored within the street right-of-way that is outside the project limits as shown on the approved plan.

Local and emergency vehicle traffic shall be maintained at all times.

The City of Madison Traffic Engineer for this project will be Jeremy Nash at 608-266-6585 or jnash@cityofmadison.com. All Traffic Control activities will also be coordinated with Rob Kennedy at the University of Wisconsin at 608-263-1034 or rob.kennedy@wisc.edu.

SECTION 108.2 PERMITS

The City of Madison has received a City of Madison Erosion Control Permit, a Wisconsin Department of Natural Resources (WDNR) general permit, WDNR individual permits for dredging and installation of a stormwater treatment structure within Willow Creek, and a USACE permit. The permits shall be posted at a conspicuous location on the project site for at least five days prior to construction and remaining at least five days after construction.

The Contractor shall meet the conditions of the permits by properly installing and maintaining the erosion control measures shown on the plans, specified in these Special Provisions, or as directed by the Construction Engineer or his designees. This work will be paid for under the appropriate contract bid items or, if appropriate items are not included in the contract, shall be paid for as Extra Work. A copy of the permit is available at the City of Madison, Engineering Division office.

SECTION 109.2 PROSECUTION OF THE WORK

The Contractor shall begin work on or after **SEPTEMBER 26, 2016**, but no later than **OCTOBER 1, 2016**. All concrete work shall be completed before the winter shutdown. After spring mobilization, the Contractor shall have all work completed by **June 1, 2017**.

Work shall begin only after the start work letter is received. If it is desirable to begin work before the above-mentioned date, the Contractor shall establish a mutually acceptable date with the City Engineer (contact the Construction Engineer at 266-4094).

SECTION 201.1 EROSION CONTROL

Slope stabilization after excavation to construct the concrete structure shall be required. All cut slopes shall be stabilized throughout construction in the fall, the winter shutdown and landscaping in the spring. This shall be paid under BID ITEM 90051.

A winter shut-down plan shall be submitted a minimum of two weeks before shut-down to be approved by construction engineer. All concrete work must be finished before the shut-down, only slope restoration and landscaping work shall occur in the spring. The winter shut-down plan shall include, at a minimum:

- Slope stabilization for exposed cut that will hold soil in place until spring slope restoration occurs
- A plan to conduct weekly inspections and submit reports including any proposed actions or repairs needed in anticipation of rain, thawing weather, or other erosion risks.
- A back-up plan in the case that slope stabilization fails

The contractor shall wait until spring mobilization to begin slope restoration and landscaping work even in the event of a warmer winter.

BID ITEM 20101 – EXCAVATION CUT

Excavation Cut shall include but is not limited to excavation above the waters edge (defined as 851.0 ft AMSL) for installation of the reinforced concrete channel and encapsulated soil lifts and regrading of the creek banks as shown in the plan set. Excavation Cut quantity was based on estimates of encapsulated lift area, as shown is Sheets U4 and E2, lift height, as shown in Sheets E3-E5, and lift depth, as shown Sheets E3 and E5. Except where otherwise noted in Sheets E3-E5, lift depth will be 6' or to the back of curb. Some undistributed quantity of Excavation Cut shall be required to grade encapsulated lifts to match existing grade. Excavated topsoil shall be stockpiled and reused onsite where appropriate. All excavated waste materials shall be hauled off-site and disposed of at no additional cost to the City. This item will be paid per plan quantity.

BID ITEM 20140 – GEOTEXTILE FABRIC TYPE SAS NON WOVEN

Geotextile Fabric Type SAS Non Woven shall include geotextile fabric needed to create a dry and stable base for the under drain system as defined on Sheet U6 and in Bid Item 90040. Geotextile fabric quantity was estimated assuming coverage is required throughout the entire base of the structure.

BID ITEM 20217 – CLEAR STONE

Clear Stone shall include but is not limited to material required to construct the construction entrance as shown on Sheet U10, and clear stone required to create a dry and stable base for the underdrain system as defined on Sheet S6 and in Bid Item 90040. Clear stone quantity was estimated assuming a 2' required thickness throughout the base of the structure.

BID ITEM 21002 – EROSION CONTROL INSPECTION

Work under this bid item shall be for weekend inspections (inspections required for rain events that occur on a Friday or Saturday) by the Contractor after half inch or greater rain events or as directed by the construction engineer. All weekly inspections and rain event inspections required during the work week (Monday-Friday) shall be completed by the City of Madison construction inspector. This work is for events that occur only during the active construction period, not during winter shutdown.

BID ITEM 40321 – UNDERCUT

Undercut shall include undercutting needed to create a dry and stable base for the underdrain system as defined on Sheet U6 and in Bid Item 90040. Undercut quantity was estimated assuming a 2' required depth throughout the entire base of the structure.

BID ITEM 50437 – 6 INCH TYPE III STORM SEWER PIPE

Acceptable materials, work, measure and payment under these items shall be per Article 504 of the 2015 edition of the Standard Specifications for Public Works Construction.

All elbows, fittings, and/or couplings required to join the new 6" storm sewer pipe to the existing 6" iron pipe at S-8 shall be included in this item. Contractor shall excavate and cut the existing 6" iron pipe at S-8 as shown in the plan set, and field-verify the pipe invert and slope at S-8. Contractor shall coordinate the selection of a coupling method with the City of Madison Construction Inspector.

BID ITEM 50440 – 12 INCH TYPE III STORM SEWER PIPE

Acceptable materials, work, measure and payment under these items shall be per Article 504 of the 2015 edition of the Standard Specifications for Public Works Construction. All elbows and fittings shall be included in this bid item.

BID ITEM 90030 – REINFORCED CONCRETE CHANNEL

DESCRIPTION

Work under this item shall include all necessary work, materials, and incidentals necessary to construct the reinforced concrete channel with broad-crested weir and access ramp at the location called for in the plan set. The structure is detailed in **Sheets S1-S11** in the plan set.

The dimensions of the treatment structure shall conform to those indicated in the construction detail sheets. This item shall include all materials for building the structure including but not limited to: concrete, rebar reinforcement, connections, pressure relief valves, adhesive anchors, clear stone, and stop gate. Cold weather protection (if used) for installation of the structure shall be included with this item. Construction of this structure shall be in accord with attached specifications 03100, 03200, 03300, 05501 and 05560. Contractor shall provide crystalline waterproofing admixture to all structural channel concrete

per attached specification 03350. The admixture is not required for ramp concrete or concrete slope paving.

Prior to construction, the Contractor shall submit plans, details and/or material specifications for the reinforced concrete channel to the City Design Engineers for approval. The Contractor shall anticipate that the City shall have up to ten (10) days to review the documents submitted prior to providing approval or comments.

The Design Engineers for this project are Lauren Striegl, at 608-266-4094 or Lstriegl@cityofmadison.com, and Greg Fries, at 608-267-1199 or gfries@cityofmadison.com.

METHOD OF MEASUREMENT

Reinforced Concrete Channel shall be measured as a completed unit upon complete construction of the structure in the field.

BASIS OF PAYMENT

Reinforced Concrete Channel shall be measured as described above which shall be full compensation for all work, materials and incidentals to complete the work as explained in the description above.

BID ITEM 90031 – DREDGING

DESCRIPTION

Work under this item shall include all work, transport, and materials necessary to dredge sediments from Willow Creek in the locations shown on the plan set, transport and place dredged material to the Dane Co Landfill. This shall include any and all work needed to dry back the material and hauling to drying beds or to dewater the material on site prior to dredging.

The Contractor shall submit for approval a dredging and sediment transport plan prior to beginning work in Willow Creek. Mechanical dredging, including the use of a backhoe or clamshell, will be considered an acceptable methodology, hydraulic dredging shall not be approved. The intent of the dredging is to remove sediment accumulated from storm water runoff and sloughing of the stream bank. The Contractor shall remove sediment to a minimum elevation of 2.33 feet below proposed grades as shown in Sheet U3, or as shown in cross-sections in Sheet U6. Any over excavation required to create a stable base for the under drain system (Section 90040) shall be incidental to the contract.

Regardless of dredging methodology employed by the Contractor, dredged material will be loaded by the contractor into trucks with water-tight seals and transported and placed as appropriate to the method of dredging utilized. The Contractor shall obtain approval from Dane County Landfill (Madison, WI) by contacting John Welch at Welch@countyofdane.com to deliver the material from the dredging operations directly to the landfill. This will only be allowed if the Contract dewaters the project area prior to dredging. If the Contractor does not dewater prior to dredging, the Contractor shall transport and place the material at the Madison Metropolitan Sewerage District (MMSD) drying beds. The Contractor shall contact Paul Nehm (MMSD) at 608-222-1201 ext. 252 or pauln@madsewer.org. The Contractor shall be responsible for all work to dry back the material to a moisture content acceptable to the Operators of the Dane County Landfill. Once the material has been dried, the contractor will re-load the material into sealed tri-axle trucks and transport it to the Dane County Landfill for disposal. Overexcavated materials (see above paragraph) shall be disposed of following these procedures, but disposal shall be incidental to contract.

If trash is encountered in the dredging process, it shall be segregated and properly disposed of by the Contractor. Managing any large trash shall be considered incidental to this bid item.

METHOD OF MEASUREMENT

Dredging shall be paid per Cubic Yard of material removed from Willow Creek. This item shall be measured per the plan quantity, which was determined from cross-sectional areas, with no volumetric adjustments for shrink or swell. If there are significant changes to the plan in the field the Contractor may request the City to survey the site and to determine the volume removed by survey. The request along with a justification for request shall be made to the Construction Engineer. The Construction Engineer shall review the request and determine if the request is justified. If the determination is made that it is justified, the final volume shall be computed by determining the difference between the original ground surface and the final surface on 25 foot cross sections with average end area method.

BASIS OF PAYMENT

Dredging shall be measured as defined above, and shall be paid for at the contract unit price, which shall be considered full compensation for all work, materials, equipment, and incidentals necessary to dredge Willow Creek to the lines and grades defined in the plan set, to haul the dredged material to (if necessary) MMSD for dewatering, for dewatering, and to haul dewatered dredged material to the Dane County Landfill for disposal.

BID ITEM 90032 – PRECAST 72 INCH X 120 INCH REINFORCED CONCRETE BOX CULVERT

DESCRIPTION

This item shall include all work and coordination necessary to provide and install the 72"x120" (6'x10') box culvert as shown on the plan set, and as detailed here. This includes all joint material, bedding and backfill as described. The box shall meet ASTM C-1433 Table #1 for HS-20 loading. The box shall be manufactured, provided and installed with the appropriate amount of reinforcing steel based on the depth of cover provided along the profile of the box. If the box steel is varied along the length of box installation the Manufacturer and the Contractor shall provide a plan to the Construction Engineer to assure that the appropriate box sections are installed in the appropriate locations along the box run.

This item includes all necessary removal and disposal of, off site at a location to be provided by the Contractor, excess trench excavation. Further, the work under this item includes stockpiling and reuse of trench spoils for backfill of the trench.

The Contractor shall be responsible for coordinating delivery of the box, unloading and other incidentals associated with the installation.

The Contractor is made aware that the box culvert may tie into the existing box culvert beneath a retaining wall. Construction details for this retaining wall are shown in Sheet U12. The retaining wall is to be protected during construction. All necessary shoring and protection of the wall is included in the price of the box culvert installation.

The Contractor shall abide by the following guidelines when installing the box culverts:

1) The subgrade for the boxes shall have filter fabric (paid under **BID ITEM 20233 - RIPRAP FILTER FABRIC, TYPE HR**) placed on all exposed subgrade areas prior to placement of the bedding stone for the boxes.

2) One (1) foot of three (3) inch clear stone shall then be placed on the geotextile as bedding stone. Three (3) inch clear stone for box culvert bedding is included in the price of box culvert installation.

3) Those portions of the box culvert under the pavement structure backfill shall be in accord with SDD 5.2.1 & SDD 5.2.2. Provision and placement of backfill is included in the price of this bid item.

4) Three sections of pipe closest to connection with existing 72"x120" concrete box culvert (S-3 on Sheets U3-U5, U11) shall be tied using joint ties. At the point of connection with the existing box culvert (S-3), it is allowable to use four (4) joint ties – two on the top edge of the box culvert, and two on the side

of the box culvert furthest from the excavation boundaries. Tied joints will be sealed with concrete collars, paid for under **Bid Item 50499 – Concrete Collar**.

5) The box culvert shall be tied into the existing headwall in the creek (S-1 on Sheets U3-U5, U11) as shown in details on Sheet S10.

METHOD OF MEASUREMENT

Precast 72"x120" Reinforced Concrete Box Culvert shall be measured by the linear foot for box culvert provided and installed.

BASIS OF PAYMENT

Precast 72"x120" Reinforced Concrete Box Culvert, as measured above, shall be considered full compensation for all work, materials, and incidentals required to complete the work as described above.

BID ITEM 90033 – BULKHEAD (72 INCH X 120 INCH REINFORCED CONCRETE BOX CULVERT)

DESCRIPTION

Work under this item shall include all necessary work, materials, and incidentals necessary to plug the existing 72"x120" concrete box culvert stub. The bulkhead should consist of ties and concrete, as shown in Bulkhead Detail on Sheet U9. It may be wild-formed on the backside and extend up to 2' beyond the end of the stub.

METHOD OF MEASUREMENT

Bulkhead (72 inch x 120 inch Reinforced Concrete Box Culvert) shall be measured by each unit completed in place and satisfactorily installed.

BASIS OF PAYMENT

Bulkhead (72 inch x 120 inch Reinforced Concrete Box Culvert) shall be measured as described above which shall be full compensation for all work, materials and incidentals to complete the work as explained in the description above.

BID ITEM 90034 – LAKE & STORM CONTROL PLAN & IMPLEMENTATION

DESCRIPTION

Work under this item shall include all labor, materials, and incidentals required to prepare a storm control plan and to implement the approved plan. It shall also include a sheet pile coffer dam that will be installed approximately 25-50 ft downstream of the project area to hydraulically separate the project area from Lake Mendota, and to protect Lake Mendota from any construction-related sediment and/or debris. The coffer dam will be set to an elevation of at least the summer maximum elevation in Lake Mendota (850.1 ft AMSL); however, the exact elevation will be determined by the contractor. A storm flow diversion system will be installed to divert flow from the City of Madison box culvert that discharges to the creek around the project site and to Willow Creek downstream of the installed coffer dam. The contractor may choose to complete the project in stages for more effective storm and lake control. All shoring for staging purposes is included in this bid item.

The storm control plan shall include dry weather, wet weather and backwater flow control contingencies. The Contractor shall submit to the project engineer a plan that details how lake water and storm flows will be managed and/or diverted during placement of the new 72"x120" storm sewer box culvert and connection and abandonment/removal of existing storm box at Willow Creek. The approved methodology shall be installed prior to any storm sewer work. Any work, materials, and incidentals necessary to repair

and restore the site due to the Storm Control Implementation shall be considered incidental to this bid item.

Existing conditions are that the existing storm boxes have a small intermittent base flow year-round, with up to ~1000 cfs of storm flow during large (100-year) events. Willow Creek is a backwater for Lake Mendota; as such, the creek holds water at Lake Mendota levels year-round.

The Contractor is advised that sustained high water levels in Lake Mendota are possible. Lake level data is available from Dane County at:

http://www.countyofdane.com/lwrd/landconservation/lakelevelsearchpg.aspx

If phasing will be required to properly control the storm flows on site during project construction, this shall be defined and detailed in the Storm Control Plan. The Contractor shall provide appropriate storm control measures during the entire duration of the project. Removal of all equipment and materials used for storm control shall be considered incidental to this bid item.

METHOD OF MEASUREMENT

Lake & Storm Control and Implementation Plan shall be measured as a lump sum bid item.

BASIS OF PAYMENT

Lake & Storm Control and Implementation Plan, as measured above, shall be considered full compensation for all work, materials, and incidentals required to complete the work as described above.

BID ITEM 90035 – ENCAPSULATED SOIL LIFTS

DESCRIPTION

Work under this item shall include all necessary work, materials, and incidentals necessary to install encapsulated soil lifts. Encapsulated soil lifts shall be installed to boundaries shown in Sheet U4 and Sheets E2-E4. Lifts shall be Agrecol's Envirolok erosion control system or approved equal, and shall conform to specifications shown in Sheet E7 and be installed as shown in Sheet E5- E6.

METHOD OF MEASUREMENT

Encapsulated Soil Lifts shall be measured by the square foot acceptably installed. Measurement shall be along the vertical face of the lifts.

BASIS OF PAYMENT

Encapsulated Soil Lifts shall be measured as described above which shall be full compensation for all work, materials and incidentals to complete the work as explained in the description above.

BID ITEM 90036 – LIVE-STAKING

DESCRIPTION

This item shall consist of obtaining or collecting, transporting and preparing live stakes from an approved location to the job site and inserting into finished grades 2-3 feet above the intersection of the box culvert and Encapsulated Soil Lifts so as to not be touching the concrete. The stakes shall be placed 3-5 feet apart horizontally. The Contractor shall choose at least 5 of the following species to use as live stakes:

- Spirea betulifolia - i.e. 'Birchleaf Spiraea'
- Spiraea japonica

    - i.e. Yan 'Gold Spiraea'
    - i.e. SMNSJMFR 'Red Spiraea'
    - i.e. Galen 'Double Play Artisan Spiraea'
- Weigela florida
    - i.e. Bokrasopin 'Pink Reblooming Weigela'
    - i.e. Bokraspiwi 'Spilled Wine Weigela'
- Salix 'Morton'
    - i.e. 'Golden Curly Willow'
- Cornus sericea
    - i.e. 'Red Osier Dogwood'
- Aronia
- Diervilla
- Sumac

If necessary, based on availability or pricing, the Contractor may suggest alternate species. However, any proposed alternatives should be native to the area, or cultivars based on native species. No alternatives shall be planted without prior approval from the Project Engineer.

Construction methods

Prior to starting work, the Contractor shall mark layout for the Engineer's approval. Use approved spray paint or stakes.

When live stakes are collected, each site shall be evaluated to determine the maximum amount of collection allowable that will not cause a detrimental reduction of the species on the site or change the visual character of the site to an unacceptable degree. In no instance shall more than 50% of an individual plant be removed.

Cuttings for live-stakes shall consist of stems of the previous season's growth. Select cuttings from plants growing in full sun and from the healthiest portions of the plant. Live stakes shall be straight, live, have all side branches removed and bark intact. Live stakes should be 3-4 feet long and at least 0.5 inch diameter. Contractor shall make a straight cut at the narrow end of the stake, and an angled cut at the thick end (nearest the trunk) to make a point. The straight end of the cutting shall be dipped in latex paint (2-3 inches) and all leaves and small branches will be removed from stakes immediately after cutting to prevent drying and cracking of the stakes. Cuttings shall be bound and labeled with the source and harvest date as they are being cut. The Contractor shall not take more cuttings than can be prepared and installed within a 24 hour period. If an unexpected delay occurs after cutting, plant materials can be stored in cool, damp environment for an additional 24 hours. If delays greater than 24 hours are encountered, store cuttings in a refrigerated unit at a temperature of 32 degrees F to 35 degrees F and relative humidity of 90%, for a maximum of 4 weeks. Cuttings from commercial vendors and conforming to these specifications are also acceptable.

Prior to installation, live stakes shall be treated with rooting hormones using a short drench or overnight soak using the manufacturer's recommended mix ratios of rooting hormones.

Before inserting the stakes into the slope, a metal device of equal or longer length and width than the stakes (i.e. 3 feet long 0.5 inch rebar) shall be pounded into the ground at a 90 degree angle to the slope to create a pilot hole for stakes. The pilot hole should go through the ECRM Class I, Type B Organic, Class III, Type C TRM with soil and hydroseed, soil covering the Encapsulated Soil Lifts and through the Encapsulated Soil Bags into 6 inch of the soil behind which will give the live stakes enough contact with the soil to develop roots. The pilot hole shall be large enough to fit two stakes and two stakes shall be inserted in each pilot hole. Care shall be taken during installation to prevent damage to the stakes. Remove and replace stakes that are damaged during installation. Live stakes shall be inserted deep enough that they make contact with the soil behind the Encapsulated Soil Lifts and protrude at least 6 inch beyond the face of the erosion matting. Live stakes are to be installed basal end down, buds up.

METHOD OF MEASUREMENT

Live stakes, harvested (or otherwise obtained), delivered, installed, completed, and accepted will be measured per each unit.

BASIS OF PAYMENT

Live stakes shall be measured as described above and shall be paid at the contract price, which shall be full compensation for harvesting or supplying, placing, watering, and maintaining the stakes, including all equipment, tools, labor, and incidentals necessary to complete the work as provided in the description.

BID ITEM 90037 – CONCRETE WASTE MANAGEMENT

DESCRIPTION

The contractor shall follow the City of Madison Specifications (per Section 301.10) for all concrete waste management. This specification will be strictly enforced with this contract.

METHOD OF MEASUREMENT

Concrete Waste Management shall be measured as a lump sum bid item.

BASIS OF PAYMENT

Concrete Waste Management shall be measured as described above which shall be full compensation for all work, materials and incidentals to complete the work as explained in the description above.

BID ITEM 90038 – REMOVE, SALVAGE & REPLACE RIPRAP

DESCRIPTION

Heavy Riprap Salvaging & Replacement shall include the removal and placement of salvaged riprap at the locations specified on the plan set and in accord with these Special Provisions. Stone shall be laid with close, broken joints and shall be firmly bedded in the slope and against the adjoining stones. The stones shall be laid perpendicular to the slopes with ends in contact. The riprap shall be thoroughly compacted as construction progresses and the finished surface shall present an even, tight surface. The larger stone shall be placed in lower course. Interstices between stones shall be chinked with spalls firmly rammed into places.

As part of salvaging and replacement activity, it is assumed some loss of material will occur. This item shall include providing and installing new heavy riprap to account for construction activity loss.

The riprap shall be placed as shown on the plan, as directed by the Engineer or Construction Inspector in the field, and as called out in these Special Provisions. Unless otherwise provided, the riprap bed shall be at least 18 inches thick, measured perpendicular to the slope.

METHOD OF MEASUREMENT

Heavy Riprap Salvaging & Replacement shall be by the square yard acceptably installed.

BASIS OF PAYMENT

Heavy Riprap Salvaging & Replacement shall be paid at the contract price for work as described and measured above which shall be full compensation for all labor, tools, equipment and incidentals necessary to complete this item of work.

BID ITEM 90039 – TEMPORARY SHORING

DESCRIPTION

Work under this item shall include all necessary work, materials, and incidentals necessary to install and maintain temporary shoring for structural control, as shown in Sheets S3, S5 and S7. Temporary Shoring shall be installed and maintained per the Wisconsin Department of Transportation Standard Specifications, Part 5 (Structures), Section 511 (http://wisconsindot.gov/rdwy/stndspec/ss-05-11.pdf). Work includes installation and maintenance of the shoring. Following the completion of construction, if approved by the Construction Inspector or Engineer, the shoring may be removed or cut to ground level and left in place.

METHOD OF MEASUREMENT

Temporary Shoring shall be measured by the square foot acceptably installed, measured as the area of exposed face in the plane of the shoring from the ground line in front of the shoring to a maximum of one foot above the retained grade. Shoring used for staged construction in multiple configurations without removal and reinstallation will be measured once based on the configuration with the largest area of exposed face.

BASIS OF PAYMENT

Temporary Shoring shall be measured as described above which shall be full compensation for all work, materials and incidentals to complete the work as explained in the description above.

BID ITEM 90040 – UNDERDRAIN SYSTEM

DESCRIPTION

This work shall include all labor, equipment, materials, and incidentals required to install and connect six-inch perforated pipe under drain, wrapped, including open graded base course, geotextile fabric, cleanout frames and lid castings, and 6" dewatering ball valve as shown on the plans in Sheet S4 or as directed by the Engineer. Underdrain pipe shall be 6" PVC and shall conform to City of Madison Standard Specification 504.2(h) for Solid-Wall Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings. The pipe shall be perforated with hole size, frequency and pattern per AASHTO M278, and shall be wrapped per Section 612 of WI DOT Standard Specifications. All connections and fittings are included in this bid item.

The drainage course should be at least 12 inches thick and conform to the gradation requirements set forth as follows:

Required Drainage Course Gradation
(WI DOT Concrete Coarse Aggregate Size No. 1 Stone/AASHTO No. 67)

Sieve Size	% Passing
1 in.	100
3/4 in.	90-100
3/8 in.	20-55
No. 4	0-10
No. 8	0-5

The subgrade in the bottom of the creek must be reasonably free of water and firm enough to install the geotextile fabric, drainage layer, and the concrete structure. We anticipate this will require dewatering and the placement of clear stone over geotextile fabric. The channel subgrade shall be approved by the City prior to installing the drainage layer. Undercut, clear stone and geotextile fabric required to create this stable base will be paid for under Bid Items 40321, 20217 and 20140 respectively.

A non-woven geotextile layer (e.g., Mirafi 160N or equivalent) is required to separate the drainage layer from the subgrade soils. It is imperative that the geotextile fabric thoroughly cover the base of the

excavation and extend up the side slopes to completely envelope the stone drainage layer (except where it is covered by the concrete basin itself). Overlap fabric at least 18 in. at adjacent panels. Particular attention is required at the interfaces between the fabric and the structure. Pipe and utility line penetrations through the geotextile layer should be sealed with tape to prevent movement of fine soil particles into the clear stone layer. Minimum properties of the non-woven geotextile fabric are presented below:

Property	Minimum Roll Value
Grab Strength	180 lbs
Puncture Strength ASTM D3787	75 lbs
Burst Strength ASTM D3786	290 psi
Trapezoid Tear ASTM D4533	50 lbs
Maximum EOS	No. 30 sieve
Minimum Hydraulic Conductivity	1×10^{-2} cm/sec

METHOD OF MEASUREMENT

Underdrain System shall be measured as a lump sum bid item.

BASIS OF PAYMENT

Underdrain System, as measured above, shall be considered full compensation for all work, materials, and incidentals required to complete the work as described above.

BID ITEM 90041 – CONCRETE FLUME

DESCRIPTION

Work under this item shall include all necessary work, materials, and incidentals necessary to a curb cut and concrete flume, as shown in Sheets U3 and U9 of the plan set. Placement and installation of the flume shall conform to Part III of the City of Madison Standard Specifications for Public Works Construction, 2015. Included in this bid item shall be #4 rebar spaced as shown in Sheet 9, Concrete Flume Detail of the plan set.

METHOD OF MEASUREMENT

Concrete Flume shall be measured by each unit completed in place and satisfactorily installed.

BASIS OF PAYMENT

Concrete Flume shall be measured as described above which shall be full compensation for all work, materials and incidentals to complete the work as explained in the description above.

BID ITEM 90042 – REMOVE & REPLACE RAILING

DESCRIPTION

Work under this item shall include all necessary work, materials, and incidentals necessary to remove the existing guard railing at the discharge of the City of Madison storm sewer, as shown in Sheet U3, and replace after construction with new galvanized steel railing. The new railing will be installed after completion of all other work as shown in Sheet U9, Guard Rail Details. The new railing will be installed no further than 2' from the edge of concrete. All railing components will be galvanized steel per WisDOT Specifications for Highway and Structure Construction.

METHOD OF MEASUREMENT

Remove & Replace Railing shall be measured by and the linear foot satisfactorily installed.

BASIS OF PAYMENT

Remove & Replace Railing shall be measured as described above which shall be full compensation for all work, materials and incidentals to complete the work as explained in the description above.

BID ITEM 90043 – CONSTRUCTION FENCING

DESCRIPTION

Work under this item shall include all necessary work, materials, and incidentals necessary to construct a plastic fence around a protected tree and two monitoring wells (as shown on Sheet U3). Fence shall extend to the ground to be detectable by cane for the blind.

MATERIALS

Provide notched conventional metal "T" or "U" shaped fence posts.
Provide fence fabric meeting the following requirements.

Color: International orange (UV stabilized)
Roll Height: 4 feet
Mesh opening: 1-inch min to 3-inch max
Resin/construction: High density polyethylene diamond mesh
Service temperature: -60° F to 200° F (ASTM D648)
Tensile Yield: Avg. 2000 lb per 4 ft. width (ASTM D638)
Ultimate tensile strength: Avg. 3000 lb per 4 ft. width (ASTM D638)
Elongation at break (%): Greater than 100% (ASTM D638)
Chemical resistance: Inert to most chemicals and acids

CONSTRUCTION

Drive posts into the ground 12 to 18 in or use other Engineer approved method to secure posts. Space posts at 7 ft.

Use a minimum of three wire ties to secure the fence at each post. Weave tension wire through the top row of strands to provide a top stringer that prevents sagging. Overlap two rolls at a post and secure with wire ties.

METHOD OF MEASUREMENT

Construction Fencing shall be measured by the linear foot completed in place and satisfactorily installed.

BASIS OF PAYMENT

Construction Fencing shall be measured as described above which shall be full compensation for all work, materials and incidentals to complete the work as explained in the description above.

BID ITEM 90044 – EXPOSED SLOPE RESTORATION

DESCRIPTION

The intent of the specification is to provide and install materials, soil, and seed necessary to create a vegetated layer over the Encapsulated Soil Lifts. Work under this bid item shall include provision and installation of the Enkamat, (a Class III, Type C – Turf Reinforcement Mat) as well as all necessary work, materials, and incidentals necessary to incorporate soil into the Enkamat and apply two layers of hydroseed into it. The Enkamat shall be placed over the Encapsulated Soil Lifts between elevations 851 ft AMSL and 857 ft AMSL, as shown on Sheets U6-U7 and Sheet L1.

MATERIALS:

Topsoil in compliance with Article 202.2 (f) of Standard Specifications will be used with any application of soil. Topsoil will be inspected by the Project Engineer prior to implementation. Due to the importance of establishing a vegetative cover, the quality of the topsoil is very important and poor materials will not be accepted.

In this application, Enkamat 7020 shall be selected from the Product Acceptability List. The Enkamat 7020 was chosen for its thickness of 0.6 in, 95% availability to hold soil, 175 lbs/ft tensile strength, 80% resiliency and 80% @ 2000 hr of UV Stability. An alternate material that meets these criteria may be proposed for this location, subject to the approval of the project engineer.

Wire (sod) staples (U-shaped), geotextile pins or (triangular) wooden stakes shall be used as fasteners for the Enkamat. Staples shall be made from a minimum 11 gauge metal wire and metal pins should have a minimum diameter of 3/16 inch with a 1.5 inch steel washer at one end to form a head. Staple/pin length will vary (6-18 inch) according to soil conditions but shall be a minimum 6 inch and have a ground penetration sufficient to resist pulling out once installed. Staples/pins shall be installed flush with the soil surface. If wooden stakes are used, approximately 2 inch of the stake should remain above ground to secure the Enkamat. In some cases, 12-30 inch J-shaped pins are used and are made from re-bar with a minimum diameter of ¼ inch.

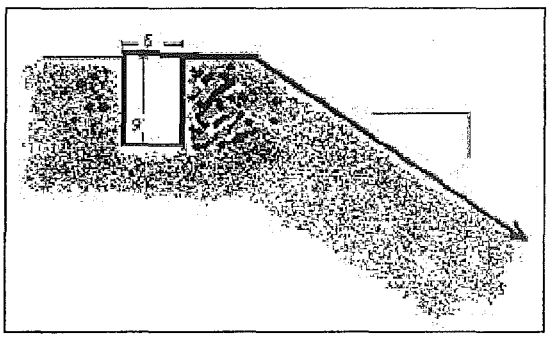
Agrecol's Shortgrass Prairie for Dry Soils Mix (Item ID: SPD) shall be used when hydroseeding the Enkamat. In addition to the Shortgrass Prairie for Dry Soils Mix, a combined cover crop of Annual Rye Grass (Lolium multiflorum) at 3 lbs/acre and Common Oats (Avena Sativa) at 30 lbs/acre shall be applied.

A Class I, Type B Organic Erosion Mat in compliance with Article 210.2 (c) of Standard Specifications will be the final layer applied over the entire area to help hold in the soils and hydroseed while the vegetation establishes.

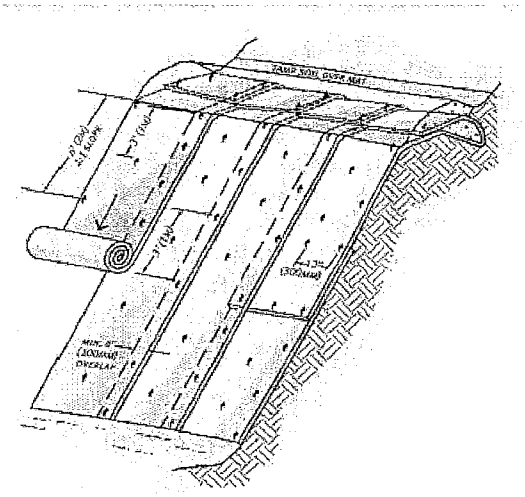
CONSTRUCTION METHODS:

1. Topsoil shall be placed and compacted over the Encapsulated Soil Lifts before laying the Enkamat. The site must be free of soil clods, clumps, rocks, obstructions, depressions, debris or vehicle imprints of any significant size that would prevent the Enkamat from laying flush to the surface contours.

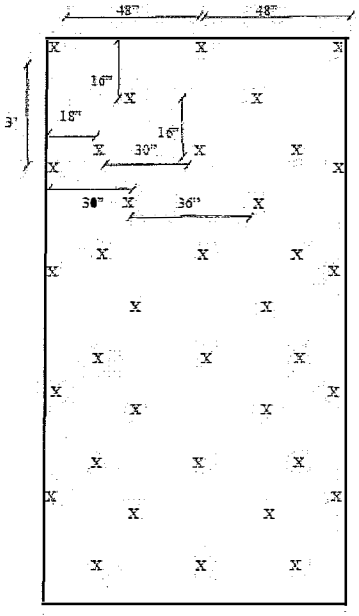
2. Anchor trenches are required to securely fasten the Enkamat to the ground surface. An anchor trench shall be installed at least 3 feet beyond the crest of the slope and shall be far enough out to not interfere with the Encapsulated Soil Lifts. The anchor trench shall be 6-9 inches wide and 6-9 inches deep. The Enkamat shall be installed into the trench and fastened at the bottom of the trench with stables/pins spaced 2 feet apart. The anchor trench shall then be backfilled and compacted in a manner that does not damage the Enkamat or Encapsulated Soil Lifts.



3. The Enkamat shall be rolled down the slope. The overlap between rolls shall be 3 to 4 inches. The splice between rolls shall be between 2 and 3 feet. The roll shall be shingled in the direction of the water flow (upslope over down slope). Pins shall be installed down the center of each mat, staggering them between the outside pins with a spacing interval of 3 feet. 4 pins shall be utilized per square yard. 2 rows of pins shall be installed 1.5 x 1.5 feet apart at all roll splice locations. After the Enkamat is installed, the Contractor shall go back over and install additional fasteners as required to ensure the Enkamat maintains intimate contact with the soil.



Sample pattern for low flow/gradient channels and slopes greater than 3:1

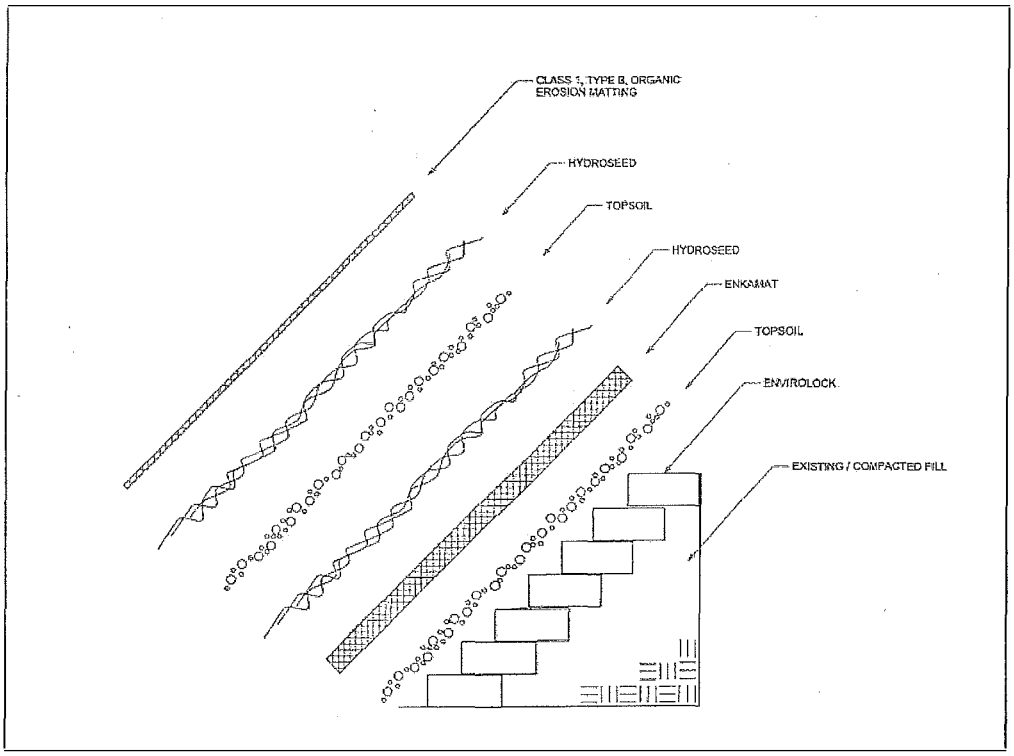


4. Care shall be taken during the installation so as to avoid damage occurring to the Enkamat as a result of the installation process. Should the Enkamat be damaged during installation, an Enkamat patch shall be placed over the damaged area extending 1 m (3.28 ft) beyond the perimeter of the damage.

5. A layer of hydroseeding including the Shortgrass Prairie, Annual Rye Grass, and Common Oats shall be sprayed into the Enkamat before incorporating soil into the Enkamat which will help incorporate roots and seed into the soil and Encapsulated Soil Lifts below. To install the hydroseed, follow all manufacturer instructions. Seed bags shall be hydrated to saturation. Mix bonded fiber matrix to manufacturer's recommendations. Note that, per Envirolok, application rates on an Envirolok Wall System require 30% additional material than most standard slope hydroseeding applications. Additional tackifier may be needed to ensure adherence to vertical bag face. Spray native seed on the installed bags using a stream or spray of water under pressure and operated from an engineer-approved machine designed for that purpose. During this process, keep the contents agitated to provide uniform distribution. If distribution of hydroseeding is not uniform, the affected areas should be reseeded. Spread the tank contents within 1 hour after adding the seed to the tank. The engineer will reject seed that remains agitated for longer than one hour and seed that is allowed to remain mixed with fertilizer for longer than 4 hours due to seed damage.

5. The same day as the initial hydroseeding, ¾ inches of quality topsoil shall be spread into the Enkamat **manually** to completely fill it. The soil shall be lightly raked, using the backside of the rake, or brushed into the mat apertures to completely fill the mat thickness. Hand implements (shovels, rakes, and brooms) shall be the only tools used to fill the Enkamat. Once the soil has been integrated into the Enkamat, the entire area shall be hydroseeded another time following the previously stated guidelines.

6. Once the second hydroseeding has occurred, a Class I, Type B Organic Erosion Mat shall be installed over the entire restored area. The matting shall keep hydroseeding in the Enkamat protected and shall be pinned at the top of the slope.



METHOD OF MEAUREMENT

Installation of the Class III, Type C- Turf Reinforcement Mat complete with hydroseeding, soil integration, and Class I-Urban Type A matting shall be paid per Square Yard based on "plan quantity" as shown in the contract without measurement thereof. The plan quantity was computed by measuring all areas along the slopes over the Encapsulated Soil Lifts that require hydroseeding as shown on Sheet L1 amounting to 272 square yards. The Contractor shall perform their own calculations to provide additional material necessary for overlap seams, etc.

BASIS OF PAYMENT

Installation of the Class III, Type C- TRM, soil, hydroseeding and Erosion Matting Class I-Urban Type A, shall be paid at the contract price for work as described and measured above, which shall be full compensation for all labor, tools, equipment, and incidentals necessary to provide and install the matting in accordance with manufacturer's recommendations.

BID ITEM 90045 – TREE PLANTING

DESCRIPTION

The Contractor shall provide and install approximately 7 ball & burlap (B&B) trees along the creek edge as shown on Sheet L1 in accordance with Article 209 of the Standard Specifications and Standard Detail Drawings 2.01. The planting hole shall be at least 2 times the diameter of the soil ball.

Note: The root collar is the area where the roots join the trunk. With nursery grown B&B trees the root collar is rarely visible, often being several inches below the surface of the soil ball. This

depth can be determined by checking the depth in the nursery before the trees are harvested; or by using a wire and gently probing the ball to find the major roots; or by estimating, knowing that the roots will likely be about 4" below the swelling at the base of the trunk.

Excavated planting holes that will be left open when work is not in progress pose an immediate and considerable hazard to pedestrians or vehicles and shall be adequately barricaded with appropriate warning devices. The Contractor shall notify the Project Manager, in writing, of soil conditions or other obstructions the Contractor considers detrimental to tree growth. Such conditions shall be described, as well as suggestions for correcting them. Proper water drainage must be assured. Where soil conditions or below ground obstructions which cannot be remedied are encountered, the Project Manager shall designate alternate planting locations. The Contractor shall place stakes indicating tree species and exact location to review with the Engineering Project Manager prior to planting.

Note: All materials (ropes, strings, wire baskets, burlap, and other wrappings) shall be removed from the soil ball.

Tree planting shall occur from within the channel. The Contractor shall select equipment that is able to access the proposed tree locations from the greenway. The Contractor shall not cross on to private property to plant trees.

METHOD OF MEASUREMENT

Trees planted shall be measured by each tree provided and installed in the field.

BASIS OF PAYMENT

This Bid Item shall be paid for at the contract price which shall be full compensation for all work laid out in the description. This Bid Item shall include all labor, work, equipment, and incidentals required to transport equipment, personnel, and materials to the sites. This Bid Item shall also include all work and coordination necessary to obtain any necessary permits and adequately clean the site after project completion. Cleaning the site may include sweeping the sidewalk, street, or bike path in compliance with Article 210.1(d) of the Standard Specifications, as necessary to remove debris or spilled material and hauling away all trash from the site.

BID ITEM 90046 – SHRUB PLANTING

DESCRIPTION

Work under these bid items shall include the provision, placement, and maintenance of the following shrubs:

The 69 shrubs shall be placed as shown on Sheet L1, Landscape Plan. If necessary based on availability or pricing, the Contractor may suggest alternate species. However, any proposed alternatives should be native to the area, or cultivars based on native species. No alternatives shall be planted without prior approval from the Project Engineer.

Installation of all shrubs shall be completed in accordance with the latest version of the Standard Specifications for Public Works Construction, Article 209.

Preparing the ground for planting shall be incidental to Bid Item 90046. This includes removing woody debris, twigs. Leaves, roots, and other organic matter that has accumulated. Riprap and/or Envirolok bags shall not be disturbed during installation of the shrubs. If disturbance occurs accidentally, the Contractor shall be responsible for riprap or Envirolok bag repair or replacement.

The Contractor shall be responsible for planting layout.

Following planting, the Contractor shall place mulch over the disturbed area to stabilize the disturbed soil. Mulch obtained from the City of Madison processing facility shall be considered acceptable.

METHOD OF MEASUREMENT

Shrubs planted shall be measured by each shrubs provided and installed in the field.

BASIS OF PAYMENT

This Bid Item shall be paid for at the contract price which shall be full compensation for all work laid out in the description. This Bid Item shall include all labor, work, equipment, and incidentals required to transport equipment, personnel, and materials to the sites. This Bid Item shall also include all work and coordination necessary to obtain any necessary permits and adequately clean the site after project completion. Cleaning the site may include sweeping the sidewalk, street, or bike path in compliance with Article 210.1(d) of the Standard Specifications, as necessary to remove debris or spilled material and hauling away all trash from the site.

BID ITEM 90047 – TREE AND SHRUBS MAINTENANCE

DESCRIPTION

The Contractor shall maintain the approximately 7 newly planted trees and 69 newly planted shrubs for 1 year to ensure healthy growth, as specified in Article 209.6 of the Standard Specifications.

NOTE: Trees and shrubs shall be watered thoroughly immediately after planting and during the thirty (30) day period after initial planting.

Maintenance shall include proper watering, weeding, pruning, securing, and mulching. A performance bond shall remain in effect for one year from the date on the certificate of completion. Note: Plants shall be guaranteed for two years from the date of installation on the certificate of completion. The Contractor shall replace any tree which, for any reason, has died or failed to flourish in compliance with Article 209.6(c) of the Standard Specifications.

Tree maintenance shall occur from within the channel. The Contractor shall select equipment that is able to access the new trees from the greenway. The Contractor shall not cross on to private property to complete tree maintenance activities.

Method of Measurement

Tree and shrub maintenance shall be measured as a lump sum. No change in price will be granted if additional trees or shrubs are added to the planting plan at a later date.

Basis of Payment

This Bid Item shall be paid for at the contract price which shall be full compensation for all work laid out in the description. This Bid Item shall include all labor, work, equipment, and incidentals required to transport equipment, personnel, and materials to the sites. This Bid Item shall also include all work and coordination necessary to obtain any necessary permits and adequately clean the site after project completion. Cleaning the site may include sweeping the sidewalk, street, or bike path in compliance with Article 210.1(d) of the Standard Specifications, as necessary to remove debris and hauling away all trash from the site.

BID ITEM 90049– FALL MOBILIZATION

DESCRIPTION

This item shall include all work necessary to mobilize and de-mobilize all equipment, personal and incidentals to all portions of the project. Additionally, this item shall include winter inspection and

preparation and submittal of a winter shutdown plan to the construction engineer a minimum of two weeks prior to anticipated shutdown. This plan shall be revised until approved by the construction engineer.

METHOD OF MEASUREMENT
Mobilization shall be measured as a Lump Sum.

BASIS OF PAYMENT
Mobilization shall be measured as described above which shall be full compensation for all work, materials, and incidentals required to complete the work as described above.

BID ITEM 90050– SPRING MOBILIZATION

DESCRIPTION
This item shall include all work necessary to mobilize and de-mobilize all equipment, personal and incidentals to all portions of the project for spring landscaping and restoration.

METHOD OF MEASUREMENT
Mobilization shall be measured as a Lump Sum.

BASIS OF PAYMENT
Mobilization shall be measured as described above which shall be full compensation for all work, materials, and incidentals required to complete the work as described above.

BID ITEM 90051 – SLOPE RESTORATION AND LIVE STAKE MAINTENANCE

DESCRIPTION

The Contractor shall maintain the approximately 272 square yards of restored slopes and all live stakes to 1 year to ensure healthy growth, as specified in Article 209.6 and Article 207.4 of the Standard Specifications.

NOTE: Slopes and stakes shall be watered thoroughly immediately after planting and each day during the thirty (30) day period after initial planting. The watering shall occur with a fine mist that soaks the soil 3 inches into the Encapsulated Soil Lifts unless natural rainfall has provided equivalent watering.

The establishment period for the restored slopes generally extends for 3 months after completion of the seeding. During this time, extra care must be given to watering and when any portion of the surface becomes gullied or otherwise damaged, or when the treatment is destroyed, the affected portion should be repaired to reestablish the condition and grade of soil and treatment which existed prior to the damage.

Maintenance shall include proper watering and weeding. A performance bond shall remain in effect for one year from the date on the certificate of completion.

All areas that have been seeded with turf shall be guaranteed to be in a healthy and flourishing condition as defined in section 207.4(a) Acceptance for a period of 1 year from the date on the certificate of completion.

At any time within the period of the guarantee, the Contractor shall replace any seeded areas which for any reason, have died or are in a dying condition, or which have failed to flourish in such a manner or to such a degree that their usefulness or appearance has been impaired. Replacement shall include removal and repair of all affected work. Seeded areas that have perished for any reason shall be reseeded or overseeded with the exact variety of turf seed that was originally specified. Following the completion of the repair, a re-inspection will be made prior to final acceptance.

The Contractor shall replace any live stake shrub which, for any reason, has died or failed to flourish in compliance with Article 209.6(c) of the Standard Specifications for one year from the date on the certificate of completion.

Method of Measurement

Live sake and slope maintenance shall be measured as a lump sum. No change in price will be granted if additional live stakes are added to the planting plan at a later date.

Basis of Payment

This Bid Item shall be paid for at the contract price which shall be full compensation for all work laid out in the description. This Bid Item shall include all labor, work, equipment, and incidentals required to transport equipment, personnel, and materials to the sites. This Bid Item shall also include all work and coordination necessary to obtain any necessary permits and adequately clean the site after project completion. Cleaning the site may include sweeping the sidewalk, street, or bike path in compliance with Article 210.1(d) of the Standard Specifications, as necessary to remove debris and hauling away all trash from the site.

BID ITEM 90052 – TEMPORARY SLOPE STABILIZATION

DESCRIPTION

All cut slopes shall be stabilized throughout fall construction and winter shutdown.

METHOD OF MESAUREMENT

Temporary slope stabilization shall be measured as a Lump Sum bid item.

BASIS OF PAYMENT

Temporary Slope Stabilization, as measured above, shall be considered full compensation for all work, materials, and incidentals required to complete the work as described above.

TECHNICAL SPECIFICATIONS

WILLOW CREEK STORMWATER TREATMENT
PROJECT NO. 53W1734
CITY OF MADISON, WISCONSIN

Prepared by:

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Issued for Bid
May 20, 2016

STRAND ASSOCIATES®

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SECTION 00010

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TECHNICAL SPECIFICATIONS

WILLOW CREEK STORMWATER TREATMENT
PROJECT NO. 53W1734
CITY OF MADISON, WISCONSIN

END OF SECTION

SECTION 03100

CONCRETE FORMWORK

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Forms for cast-in-place concrete.
   2. Form accessories.
   3. Openings for other work.
   4. Form stripping.

B. Related Sections and Divisions: Applicable provisions of Standard Specifications Part I shall govern work in this section.

1.02 REFERENCES

A. ACI 117–Tolerances for Concrete Construction.

B. ACI 318–Building Code Requirements for Reinforced Concrete.

C. ACI 347–Recommended Practice for Concrete Formwork.

D. PS1–Construction and Industrial Plywood.

1.03 DESIGN

A. All formwork shall comply with ACI 347 and ACI 301.

B. CONTRACTOR shall assume the responsibility for the complete design and construction of the formwork.

1.04 SUBMITTALS

A. Submit shop drawings for form ties, form coatings, and any other form accessories.

PART 2–PRODUCTS

2.01 FORMS

A. Forms shall be of wood, plywood, steel, fiberboard lined, or other approved materials which will produce concrete which meets the specified requirements. The type, size, quality, and shape of all materials of which the forms are made are subject to the review of ENGINEER.

B. Caution shall be exercised in the use of wood or composition forms or form liner to be certain that no chemical reaction will take place which causes a damaging effect on the concrete surface.

2.02 FORM TIES–NONREMOVABLE

A. Internal wall ties shall contain positive stops at the required wall thickness. The exterior clamp portions of the tie shall be adjustable in length. Ties shall have cones on the water side of water-containing structures. Ties shall provide a positive disconnection on both ends 1 to 1 1/2 inches inside the finished face of the concrete.

B. All wall ties shall contain integral waterstops. All such ties shall be crimped or deformed in such a manner that the bond between concrete and tie cannot be broken in removal of the outer units. This portion of the tie shall not be removed prior to 24 hours after completion of the concrete placement.

C. The use of wood spacers and wire ties will not be approved.

2.03 FORM TIES–REMOVABLE

A. Taper ties which are designed to be removed entirely from the wall may be used with forms designed for this tie type and spacing.

B. Tie holes shall be plugged with either a neoprene plug, Sure-Plug by Dayton Superior, Inc., or an EPDM rubber plug, X-Plug by Sika Greenstreak, or equal.

C. Cementitious waterproofing material for patching taper tie holes shall be Hey Di K-11, Xypex Patch-N-Plug, or equal.

2.04 FORM COATINGS

A. Provide commercial formulation form-coating compounds that will not bond with, stain, nor adversely affect concrete surfaces requiring bond or adhesion, nor impede the wetting of surfaces to be cured with water or curing compounds.

2.05 CHAMFER STRIPS

A. Provide 3/4-inch by 3/4-inch wood or plastic chamfer strips at all exposed corners, except as noted.

2.06 KEYWAYS

A. Keyways shall be formed with wood inserts.

PART 3–EXECUTION

3.01 CONSTRUCTION

A. Forms shall conform to the shape, line, grade, and dimensions as shown on the drawings. They shall be mortar-tight and sufficiently rigid to prevent displacement or sagging between supports and shall support the loads and pressures without deflection from the prescribed lines. They shall be properly braced or tied together so as to maintain position and shape and insure safety to workmen and passersby. Spacing of ties shall be recommended by the tie manufacturer.

B. Formwork and finished concrete construction shall meet the tolerances specified in ACI 117.

C. When forms are placed for successive concrete placement, thoroughly clean concrete surfaces, remove fins and laitance, and tighten forms to close all joints. Align and secure joints to avoid offsets.

D. At the request of ENGINEER, temporary openings shall be provided at the base of column forms and wall forms and at other points where necessary to facilitate cleaning and observation immediately before depositing concrete.

E. Provide inserts and provide openings in concrete form work to accommodate work of other trades. Verify size and location of openings, recesses, and chases with the trade requiring such items. Securely support items to be built into forms.

F. Provide top forms for inclined surfaces where the slope is too steep to place and vibrate concrete.

G. Bevel wood inserts for forming keyways (except in expansion joints where inserts shall have square edges), reglets, recesses, and the like to assure ease of removal. Inserts shall be securely held in place prior to concrete placement. Unless otherwise shown, chamfer strips shall be placed in the angles of the forms to provide 3/4-inch bevels at exterior edges and corners of all exposed concrete.

H. The forms shall be oiled with a field-applied commercial form oil or a factory-applied nonabsorptive liner. Oil shall not stain or impede the wetting of surfaces to be cured with water or curing compounds. The forms shall be coated prior to placing reinforcing steel. Oil on reinforcement will not be permitted.

I. All form surfaces shall be thoroughly cleaned, patched, and repaired before reusing and are subject to review of ENGINEER.

3.02 FORM REMOVAL

A. All form removal shall be accomplished in such a manner that will prevent injury to the concrete and will ensure complete safety of the structure.

B. Forms shall not be removed before the expiration of the minimum times as stated below or until the concrete has attained its minimum 28-day design strength as confirmed by concrete cylinder tests, unless specifically authorized by ENGINEER. Wall and vertical faces: 24 hours.

END OF SECTION

SECTION 03200

CONCRETE REINFORCEMENT

PART 1–GENERAL

1.01 SUMMARY

A. Work includes providing complete, in-place, all steel and fibers required for reinforcement of cast-in-place concrete as shown on the drawings.

B. Related Sections and Divisions: Applicable provisions of Standard Specifications Part I shall govern work in this section.

1.02 REFERENCES

A. Applicable standards listed in this section include, but are not necessarily limited to the following:
   1. ACI 315–Manual of Standard Practice for Detailing Reinforced Concrete Structures.
   2. ACI 318–Building Code Requirements for Reinforced Concrete.
   3. ASTM A1064–Standard Specifications for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.
   4. ASTM A615–Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
   5. ASTM A996–Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcing.
   6. ASTM C1116-Standard Specification for Fiber-Reinforced Concrete.
   7. CRSI–Manual of Standard Practice.

1.03 SUBMITTALS

A. Provide complete shop drawings of all material to be furnished and installed under this section:
   1. Before fabrication of the reinforcement is begun, CONTRACTOR shall obtain the approval of ENGINEER on reinforcing bar lists and placing drawings.
   2. These drawings and lists shall show in detail the number, size, length, bending, and arrangement of the reinforcing. Reinforcing supports shall also be located on the shop drawings.
   3. Shop drawings shall be in accordance with ACI 315.

1.04 PRODUCT HANDLING

A. Delivery:
   1. Deliver reinforcement to the job site bundled, tagged, and marked.
   2. Use metal tags indicating bar size, lengths, and other information corresponding to markings shown on placement diagrams.

B. Storage: Store reinforcement at the job site on blocks and in a manner to prevent damage and accumulation of dirt and excessive rust.

PART 2–PRODUCTS

2.01 MATERIALS

A. Reinforcing bars shall comply with ASTM A615 or A996 Type R, Grade 60. Reinforcing bars required to be welded shall be ASTM A706 low alloy.

B. Reinforcement supports including bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcement in place shall be:
   1. Wire bar-type supports complying with CRSI recommendations, unless otherwise indicated.
   2. For slabs on grade, supports with sand plates, or horizontal runners where base material will not support chair legs.
   3. For exposed-to-view concrete surfaces or where the concrete surface will be exposed to weather or moisture, where legs of supports are in contact with forms, supports with either hot-dipped galvanized or plastic protected legs.
   4. When supports bear directly on the ground and it is not practical to use steel bar supports, precast concrete blocks may be used to support only the bottom lift of reinforcement. The precast blocks must be solid, be of an equal or higher strength than the concrete being placed, must provide adequate support to the reinforcement, and be of proper height to provide specified reinforcing cover. The use of face bricks, hollow concrete blocks, rocks, wood blocks, or other unapproved objects will not be permitted.

C. Fibrous Reinforcing:
   1. Fibrous concrete reinforcement shall be Fibermesh 300, manufactured by Propex Concrete Systems, or equal.
   2. Reinforcement shall be 100% virgin polypropylene fibrillated, multi-length graded fiber containing no reprocessed olefin materials and specifically manufactured for use as concrete secondary reinforcement.
   3. Physical Characteristics:
      a. Specific Gravity: 0.91.
      b. Fiber Length: Multidesign gradation.

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 fabricating errors, do not rebend or straighten reinforcement in a manner that will injure or weaken the material.
   3. Unless otherwise shown on the drawings, all end hook dimensions shall conform with "ACI Standard Hooks."

B. Reinforcement with any of the following defects shall be deemed unacceptable and will not be permitted in the work:
   1. Bar lengths, depths, and bends exceeding specified fabrication tolerances.
   2. Bend or kinks not indicated on drawings or final shop drawings.
   3. Bar with reduced cross section because of excessive rusting or other cause.

PART 3–EXECUTION

3.01 INSPECTION

A. Examine the substrate, formwork, and the conditions under which concrete reinforcement is to be placed.

B. Correct conditions detrimental to the proper and timely completion of the work.

C. Do not proceed until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. General:
   1. Comply with the specified standards for details and methods of placing reinforcement and supports.
   2. Clean reinforcement to remove loose rust, mill scale, earth, and other materials which reduce or destroy bond with concrete.

B. Placing Reinforcement:
   1. All reinforcing shall be placed in accordance with Contract drawings and with shop drawings stamped and approved by ENGINEER.
   2. Position, support, and secure reinforcing against displacement by formwork, construction, or concrete placement operations.
   3. Support reinforcing by metal chairs, runners, bolsters, spacers, and hangers as needed.
   4. Unless otherwise shown on the drawings, the reinforcement is to be so detailed and placed as to allow the following concrete protection:
      a. Three inches of cover where the concrete is placed directly against ground.
      b. Two inches of cover where the concrete is placed in forms but is to be exposed to weather, liquid, or the ground.
   5. Reinforcement shall be positioned within ±3/8-inch for members with depth to tension reinforcing from compression face less than or equal to 8 inches. Tolerance shall be ±1/2 inch for members with depth to tension reinforcing from compression face greater than 8 inches. Tolerance on dimension between adjacent bars in slab and wall reinforcing mats shall be 1 inch. Secure against displacement by anchoring at the supports and bar intersections with wire or clips.
   6. Bars shall be securely tied at all intersections except where spacing is less than 1 foot in each direction when alternate intersections shall be tied. To avoid interference with embedded items, bar spacing may be varied slightly if acceptable to ENGINEER. Tack welding of reinforcing will not be permitted.
   7. Set wire ties so that twisted ends are directed away from exposed concrete surfaces.
   8. If reinforcing must be cut because of openings or embedded items in the concrete, additional reinforcing must be provided adjacent to the opening at least equal in cross sectional area to that reinforcing which was cut, and it shall extend a minimum of 36 bars diameters beyond the opening on each side or as shown on the drawings. At sumps or depressions in slabs, bars shall be bent and/or extended under sumps or depressions.
   9. Wall reinforcing mats shall be secured in a vertical plane by providing clearance from forms with bar supports and by using Z-shaped bars at ±4 feet on center wired between two mats of steel, spacing and staying both of them. Nails shall not be driven into the forms to support reinforcement and neither shall wire for this purpose come in

contact with the forms. Alternate top transverse bars in slab shall be supported by individual bar chairs at approximately 3-foot 0-inch centers. Bottom longitudinal bars shall be supported by continuous bar chairs at approximately 4-foot 0-inch centers.

10. If carrier bars are to be used, CONTRACTOR shall provide reinforcing bars for this purpose in addition to the reinforcing called for by the drawings and specifications.

C. Reinforcement Supports:
   1. Strength and number of supports shall be sufficient to carry reinforcement.
   2. Do not place reinforcing bars more than 2 inches beyond the last leg of any continuous bar support.
   3. Do not use supports as bases for runways for concrete-conveying equipment and similar construction loads.

D. Splices:
   1. Provide standard reinforcement splices by lapping ends, placing bars in contact, and tightly wire tying.
   2. Lap splices in reinforcing shall be provided as shown on the drawings. Where lap splice lengths are not shown on the drawings, provide Class B, Category 1 lap splices in accordance with ACI 318.
   3. Mechanical splices and threaded dowel bar inserts may be used where approved by ENGINEER. Splices shall be capable of developing at least 125% of the yield strength of the reinforcing bar.

E. Embedded Items:
   1. Allow other trades to install embedded items as necessary.
   2. Particularly after bottom layer of reinforcing is placed in slabs, allow electrical contractors to install conduit scheduled for encasement in slabs prior to placing upper layer of reinforcing.

F. Minimum Reinforcing: Where reinforcing is not shown, provide a minimum of No. 4 at 8-inch centers each way in members 10 inches or less in thickness and No. 5 at 12-inch centers each way in each face in members greater than 10 inches thick.

G. Fibrous Reinforcing:
   1. Fibrous concrete reinforcing shall be used in all slab-on-grade concrete above the channel.
   2. Add fibers at a minimum rate of 1.5 pounds per cubic yard.
   3. Mix concrete in strict accordance with reinforcement manufacturer's recommendations.

END OF SECTION

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. All cast-in-place concrete as shown except as noted otherwise.
   2. Hydrophilic waterstops, expansion joint fillers, bonding agents, patching mortars, curing compounds, and other related items and accessories.

B. Related Sections and Divisions: Applicable provisions of Standard Specifications Part I shall govern work in this section.

1.02 REFERENCES

A. ACI 211.1–Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete.

B. ACI 301–Specifications for Structural Concrete.

C. ACI 304R–Guide for Measuring, Mixing, Transporting, and Placing Concrete.

D. ACI 305R–Guide to Hot Weather Concreting.

E. ACI 306R–Guide to Cold Weather Concreting.

F. ACI 308–Specification for Curing Concrete.

G. ACI 309–Guide for Consolidation of Concrete.

H. ACI 318–Building Code Requirements for Structural Concrete and Commentary.

I. ASTM C31–Standard Practice for Making and Curing Concrete Test Specimens in the Field.

J. ASTM C33–Standard Specification for Concrete Aggregates.

K. ASTM C39–Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.

L. ASTM C40–Standard Test Method for Organic Impurities in Fine Aggregates for Concrete.

M. ASTM C88-Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.

N. ASTM C94–Standard Specification for Ready-Mixed Concrete.

O. ASTM C143–Standard Test Method for Slump of Hydraulic-Cement Concrete.

P. ASTM C150–Standard Specification for Portland Cement.

Q. ASTM C156–Standard Test Method for Water Loss (from a Mortar Specimen) Through Liquid Membrane-Forming Curing Compounds for Concrete.

R. ASTM C172–Standard Practice for Sampling Freshly Mixed Concrete.

S. ASTM C231–Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.

T. ASTM C260–Standard Specification for Air-Entraining Admixtures for Concrete.

U. ASTM C309–Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.

V. ASTM C494–Standard Specification for Chemical Admixtures for Concrete.

W. ASTM C618–Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.

X. ASTM C652–Standard Specification for Hollow Brick (Hollow Masonry Units Made From Clay or Shale).

Y. ASTM D994–Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type).

Z. ASTM D1752–Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction.

1.03 SUBMITTALS

A. Submit shop drawings for all materials used in concrete mix.

B. Submit the following information:
1. Gradation of fine and coarse aggregate–ASTM C33.
2. Specific gravity and dry rodded density of each aggregate.
3. Test of deleterious substances in fine and coarse aggregate–ASTM C33.
4. Design mix of each individual concrete mix to be used.
5. Previous test results or trial batch results with 7- and 28-day compressive strengths for each concrete mix proposed.
6. Certified mill test results for cement identifying brand, type, and chemistry of cement to be used.
7. Brand, type, principal ingredient, and amount of each admixture to be used.

C. It is important that the above data be submitted to ENGINEER well in advance of anticipated concreting operations to avoid any delay in construction.

PART 2–PRODUCTS

2.01 CEMENT

A. Cement shall be Portland cement conforming to ASTM C150. Cement used for structures shall be Type I or Type I/II. Type III cement shall be used only when permitted by ENGINEER. All cement shall be the product of one reputable manufacturer and mill.

B. Cement shall be stored in a dry, weathertight, properly ventilated structure with the floor raised not less than 1 foot above the ground.

2.02 FLY ASH

A. All fly ash used as an admixture in Portland cement concrete shall be Class C or F conforming to the requirements of ASTM C618.

2.03 AGGREGATE

A. All aggregates shall be washed and shall consist of natural sand, gravel, or crushed rock and shall have clean, hard, durable, uncoated grains of strong minerals. The amounts of deleterious substances present in the fine and coarse aggregate expressed in percentages by weight shall not exceed the following:

	Aggregate	
Deleterious Substance	Fine	Coarse
Clay Lumps and Friable Particles	3.0	3.0
Coal and Lignite	0.5	0.5
Mineral finer than No. 200 sieve	3.0	
Soft Fragments	3.0	3.0
Chert*	---	5.0
Sum of Chert and Clay Lumps		5.0

* Material classified as chert and having a bulk specific gravity of less than 2.45. The percentage of chert shall be determined on the basis of the weight of chert in the sample retained on a 3/8-inch sieve divided by the weight of the total sample.

B. The combined amount of all deleterious substances in an aggregate shall not exceed 5% of the weight of the aggregate.

C. If required by ENGINEER, sodium sulfate soundness tests (ASTM C88) shall be performed on the aggregate. When the aggregate is subjected to 5 cycles, the weight loss shall not exceed 12%. Samples of proposed aggregates shall be submitted to an independent laboratory for testing in advance of concrete work. All testing shall be performed in accordance with ASTM C33. Certified test results shall be submitted to ENGINEER confirming that aggregate complies with all stated specifications. Report shall identify source of aggregate and absorbed water.

D. Fine aggregate shall be well-graded from coarse to fine and shall conform to the following requirements:

Percentage by Weight	
Passing 3/8-inch sieve	100
Passing No. 4 sieve	95-100
Passing No. 8 sieve	80-100
Passing No. 16 sieve	50-85
Passing No. 30 sieve	25-60
Passing No. 50 sieve	5-30
Passing No. 100 sieve	0-10

E. Gradation of fine aggregate shall be reasonably uniform and not subject to the extreme percentages of gradation specified above. The fineness modulus shall be not less than 2.3 or more than 3.1, nor shall the fineness modulus of any sample vary by more than +0.20 from the fineness modulus of the representative sample used in proportioning the concrete.

F. If required by ENGINEER, fine aggregate shall be subjected to the color-metric test for organic impurities (ASTM C40) and shall not produce a color darker than Figure 1, unless they pass the mortar strength test. Aggregate producing color darker than Figure 2 shall not be used in any event.

G. Coarse aggregate shall be well-graded from coarse to fine, and when tested by laboratory sieves having square openings, shall conform to the following requirements:

	Percentage by Weight Aggregate	
	3/4-inch Stone	1 1/2-inch Stone
Passing 2-inch sieve	---	100
Passing 1 1/2-inch sieve	---	90-100
Passing 1-inch sieve	100	20-55
Passing 3/4-inch sieve	90-100	0-15
Passing 3/8-inch sieve	20-55	0-5
Passing No. 4 sieve	0-10	---
Passing No. 8 sieve	0-5	---

H. The 3/4-inch aggregate shall be used in concrete members no thinner than 4 inches and less than 10 inches thick. A blend of 3/4-inch and 1 1/2-inch aggregate shall be used in members 10 inches thick and thicker with the 3/4-inch aggregate comprising between 35% and 65% of the total course aggregate. When members thinner than 10 inches are placed monolithically with members thicker than 10 inches, the aggregate requirements for the thinner member shall apply.

I. Aggregates must be allowed to drain for at least 12 hours before being used. The ground upon which aggregates are stored must be hard, firm, well-drained, and free from all vegetable matter. Various sizes of aggregates must be stored separately, and if they have become contaminated or merged with each other, they shall not be used.

2.04 WATER

A. Water used in mixing concrete shall be clean and free from injurious amounts of oil, alkali, organic matter, or other deleterious substances.

2.05 ADMIXTURES

A. Water Reducing Admixture shall be Master Pozzolith® 200 by BASF Admixtures, Inc., Daracem 19 by Grace, or equal. Water reducing admixture shall conform to ASTM C494, Type A and Type F. Water reducing admixture shall not reduce durability, shall increase strength 10%, and shall not affect bleeding characteristics over reference mix.

B. Air-Entraining Admixture shall be equal to MasterAir® AE 90 by BASF Admixtures, Inc., Darex by Grace Construction Products, or equal. Air-entraining admixture shall conform to ASTM C260.

C. Crystalline waterproofing additive shall be Xypex C-500, or equal, complying with Section 03350–Crystalline Waterproofing.

D. No other admixture will be allowed without written approval of ENGINEER. All admixture shall be compatible with cement, aggregate, and water used.

2.06 PROPORTIONING

A. The proportions of aggregate to cement shall be such as to produce a workable mixture that can be thoroughly compacted and that will work readily in the forms and around reinforcement without permitting materials to segregate or excess water to collect on the surfaces. The combined aggregates shall be such that when separated on the No. 4 sieve, the weight passing the sieve shall not be less than 30% nor greater than 50%.

B. Concrete of various classes shall have the following maximum water/cement or water/(cement + fly ash) ratio minimum compressive strengths at 28 days and minimum cement and fly ash contents:

Class	Maximum Water/ Cement or Water/ (Cement+Fly Ash)	Minimum 28 Day Strength-Pounds per Square Inch	Cement Content-Pounds per Cubic Yard	Fly Ash-Pounds per Cubic Yard	
				Type C	Type F
AA	0.42	4,500	611	---	---
A	0.45	4,000	564	---	---
A-FA	0.45	4,000	480	110	125
B	0.53	3,500	517	---	---
C	0.53	3,000	517	---	---
X	---	2,000	376	---	---

C. Except as otherwise indicated on the drawings or specified, all concrete shall be Class A or Class A-FA concrete.

D. All concrete mixes shall be designed for a strength of 15% above that specified to allow for job variations. All mixes shall be designed in accordance with ACI 211.1 by a competent concrete engineer or competent laboratory technician. Required materials test data shall be submitted with design mixes for review and approval by ENGINEER. Mix computations shall be submitted if requested by ENGINEER.

E. The slump for all concrete shall be 3 inches and concrete with a slump within the range of 2 to 3 1/2 inches will be acceptable unless otherwise stated.

F. A water-reducing admixture shall be used in all concrete. A qualified representative of the manufacturer shall be available to assist in proportioning the concrete, advise on the proper addition of the admixture to the concrete, and advise on adjustments of concrete proportions to suit job conditions.

G. An air-entraining admixture shall be used in all concrete except as noted. Air content shall be tested by the pressure method as outlined in ASTM C231 and shall be between 4% to 7% by volume. An air-entraining admixture is not required for concrete patching.

H. CONTRACTOR shall submit to ENGINEER concrete cylinder compressive strength results from previous projects for the same concrete mixes proposed on the current project. If this information is not available, one cubic yard trial batches of each individual mix proposed for use shall be made prior to use in the work. Four test cylinders shall be made for each trial batch, two to be tested at 7 days and two at 28 days. The trial batches shall be made preceding actual placement operations so that the results of the 7-day tests can be obtained. All costs for material, equipment, and labor incurred during design of concrete mixes shall be borne by CONTRACTOR.

I. All aggregates shall be measured by weight. The concrete mixer is to be equipped with an automatic water-measuring device that can be adjusted to deliver the desired amount of water.

2.07 WATERSTOPS

A. Hydrophilic waterstop shall be a flexible hydrophilic natural rubber strip composed of nonvulcanized rubber and urethane polymer hydrophilic agent creating a moisture-activated, self-healing waterproofing compound.

B. Hydrophilic waterstop shall be Adeka Ultraseal, or equal, products as follows:
   1. Construction Joints:
      a. Wall/slab thickness greater than 9 inches with double mat of reinforcing: MC-2010MN (3/4 inch by 3/8 inch) with embedded stainless steel wire mesh for expansion control. The waterstop shall develop a minimum of 400 psi expansion pressure and withstand a minimum 150-foot hydrostatic head. Expansion amount shall not exceed 120%.
      b. Wall/slab thickness between 4 inches and 9 inches with 1-inch minimum cover and single or double mat of reinforcing: KBA-1510FP (9/16 inch by 3/8 inch). Expansion amount shall not exceed 30%.
   2. Pipe Penetrations:
      a. Wall/slab thickness between 4 inches and 9 inches and pipe diameter greater than 4 inches and less than or equal to 24 inches: KBA-1510FP (9/16 inch by 3/8 inch).
      b. Wall/slab thickness greater than 9 inches and pipe diameter greater than 4 inches and less than or equal to 24 inches: MC-2005T (3/4 inches by 3/16 inches).

2.08 JOINT FILLER

A. Expansion joints shall have standard 1/2-inch-thick cork expansion joint filler, W. R. Meadows, or equal, meeting ASTM D1752–Type II. Exceptions to this are expansion joints in exterior concrete walks and between concrete walks and other structures which shall be asphalt expansion joint filler, 1/2 inch thick, Grace, W.R. Meadows, or equal, meeting ASTM D994.

2.09 BONDING AGENT

A. Acceptable manufacturers include MasterEmaco® P 124 by BASF, or equal.

2.10 PATCHING ADDITIVE

A. Acceptable manufacturers include MasterEmaco® A 660 by BASF, Sonocrete by Sonneborn Contech Co., or equal.

PART 3–EXECUTION

3.01 MIXING

A. Ready-mixed concrete shall be batched, mixed, and delivered in accordance with ASTM C94 and ACI 304R. In general, concrete shall be mixed 50 revolutions at plant, 20 upon arrival at site, and 20 each time water is added; maximum of 110 revolutions at mixing speed. Concrete shall be delivered and discharged within 1 1/2 hours or before the drum has revolved 300 times after introduction of water to the cement and aggregates or the cement to the aggregates. Truck mixers shall be equipped with drum revolution counters. In no event shall concrete which has taken its initial set be allowed to be used. Retempering of concrete is not permitted.

B. For batching and mixing of concrete with crystalline waterproofing admixture, see Section 03350–Crystalline Waterproofing.

C. A representative of ENGINEER may be at the batching plant periodically to observe the batching and mixing.

D. No water shall be added on the job unless required by CONTRACTOR and with the knowledge of ENGINEER; the amount of water, if added, shall be recorded on all copies of the delivery tickets. If water is added, CONTRACTOR shall verify that the required water-cement ratio is not exceeded.

E. Concrete shall have a temperature not less than 60°F nor more than 80°F as delivered to the jobsite.

F. With each load of concrete CONTRACTOR shall obtain delivery tickets and shall make these tickets available for review by ENGINEER. Delivery tickets shall provide the following information:
   1. Date.
   2. Name of ready-mix concrete plant, job location, and CONTRACTOR.
   3. Type of cement and admixtures, if any.
   4. Specified cement content in sacks per cubic yard of concrete and approved concrete mix number or designation.
   5. Amount of concrete in load, in cubic yards.
   6. Water-cement ratio.
   7. Water added at job, if any.
   8. Truck number and time dispatched.
   9. Number of mixing drum revolutions.

G. For job-mixed concrete, all concrete materials shall be mixed in a machine batch mixer for at least 1 1/2 minutes after all ingredients are in the mixer and shall continue until there is a uniform distribution of the materials and the mass is uniform in color and homogeneous. The mixer shall not be loaded beyond the capacity given by the manufacturer and shall be rotated at the speed recommended by the manufacturer. The mixer is to be provided with positive timing device that will positively prevent discharging the mixture until the specified mixing time has elapsed.

3.02 JOINTS

A. CONTRACTOR shall place all joints as shown on the drawings or specified herein. If acceptable to ENGINEER, CONTRACTOR may, at his own expense, place construction joints in addition to and at places other than those shown on the drawings. Unless

otherwise shown, all joints shall be straight, truly vertical or horizontal, and proper methods shall be employed to obtain this result.

B. Where joints are not shown on the drawings or specified elsewhere, CONTRACTOR shall provide joints as follows:
   1. Walls shall have vertical joints at 60 feet on center maximum but not more than 15 feet from corners or intersections and shall have horizontal joints at 15 feet on center maximum.
   2. Slabs shall have joints at 20 feet on center maximum in transverse direction.

C. Immediately after completion of the first pour at a joint, the concrete surface, reinforcement, and waterstop projecting beyond the joint shall be thoroughly cleaned and laitance removed. The waterstops shall not be disturbed after the concrete in the first pour at a joint has set. Concrete around waterstops shall be thoroughly compacted by hand spading and vibrating. Immediately before the second pour, all extraneous matter shall be removed from the joint, the waterstop and steel cleaned, and the surface thoroughly wetted.

D. Concrete at all joints shall have been in place at least 48 hours before abutting concrete is placed.

3.03 WATERSTOPS

A. Unless noted otherwise, hydrophilic waterstop shall be provided at all construction joints. Waterstop shall be placed as shown on drawing details, if any, and in accordance with the manufacturer's recommendations.

3.04 BONDING TO EXISTING CONCRETE

A. When placing new concrete adjacent to existing concrete, the existing concrete shall be thoroughly roughened, cleaned, and saturated with water 24 hours before pouring new concrete. Existing concrete is defined as concrete more than six months old. At time of new pour, remove any standing water and apply bonding agent. Bonding agent shall be applied in accordance with manufacturer's recommendations.

B. When patching existing concrete, remove poor concrete until firm hard concrete is exposed; roughen and clean surface of the existing concrete, clean any exposed reinforcing bars, and pour new concrete. Concrete finish shall match existing concrete. New concrete shall be 4,000 psi 28-day strength mixed with patching additive, mixed according to manufacturer's instructions. Concrete shall not be air-entrained.

3.05 EMBEDDED ITEMS IN CONCRETE

A. All sleeves, inserts, anchors, and embedded items required for adjoining work or for its support shall be placed prior to concreting.

B. All contractors whose work is related to the concrete or must be supported by it shall be given ample notice and opportunity to introduce and/or furnish embedded items before the concrete is placed.

C. Embedded items shall be positioned accurately and supported against displacement. Reinforcing bars shall clear embedded items a minimum of 2 inches.

3.06 PLACING CONCRETE

A. Before placing concrete, all equipment, forms, ground, reinforcements, and other surfaces with which the concrete will come in contact are to be thoroughly cleaned of all debris, ice, and water. Ground shall be wetted prior to placement of concrete on it.

B. After reinforcement is placed and before concrete is placed over it, ENGINEER shall be allowed sufficient time to observe the reinforcing.

C. Unless otherwise authorized by ENGINEER, all concrete shall be placed in the presence of ENGINEER.

D. Concrete shall be conveyed from the mixer to the place of final deposit as rapidly as practicable by methods that will prevent the segregation or loss of materials. Chuting for conveying purposes must be accomplished in such a manner as to prevent segregation or loss of materials. Receiving hoppers shall be installed at the chute discharge and at no point in its travel from the mixer to place of final deposit shall the concrete pass through a free vertical drop of more than 3 feet. Elephant trunks or tremies shall be used in all wall pours to prevent coating of forms and reinforcing bars.

E. Care shall be taken to avoid an excess of water on the concrete surface. Excess water shall be drained or otherwise removed from the surface. Dry cement or a mixture of cement and sand shall not be sprinkled directly on the surface to absorb water.

F. Concrete in wall pours shall be deposited in approximately horizontal layers not to exceed 18 inches in thickness. Each layer shall be well worked into the preceding layer while both layers are still soft.

G. Concrete shall be deposited as nearly as practicable in its final position to avoid segregation from rehandling or flowing. The maximum allowable lateral movement of the concrete after being deposited is 3 feet. Once concreting is started, it shall be carried on as a continuous operation until the placing of the section or panel is completed.

H. All concrete shall be placed with the aid of mechanical vibrating equipment in accordance with ACI 309. In congested areas, vibration shall be supplemented by hand spading adjacent to the forms. Vibration should secure the desired results within 5 to 15 seconds at intervals of 18 inches apart maximum. The vibrator shall penetrate the preceding layer of concrete. Vibrators shall have a frequency of not less than 10,000 impulses per minute when in operation submerged in concrete.

I. A sufficient number of spare vibrators shall be kept in ready reserve to assure adequate vibration in case of breakdown of those in use.

J. Concrete is not to be placed under water. A suitable means shall be provided for lowering the water level below surfaces upon which concrete is to be placed. This may require excavating approximately 12 inches below the bottom of the concrete surface and refilling with gravel and compacting. The groundwater shall not be allowed to rise to the bottom of the concrete until 24 hours after the concrete pour has been completed. Water shall not be allowed to fall upon or run across the concrete during this period.

K. No extra payment will be allowed for dewatering, undercutting, and gravel fill.

3.07 MOIST CURING

A. All concrete shall be maintained in a moist condition for at least 7 days after being deposited except that for high-early strength concrete, a 3-day period will be sufficient. Moist curing shall be accomplished by one of the following methods:
   1. Wood forms left in place and kept wet at all times. If the forms are not going to be kept wet, they shall be removed as soon as practicable and other methods of moist curing shall be started without delay.
   2. Use of a curing compound conforming to ASTM C309, Type I as approved by ENGINEER. Curing compound shall be applied at a uniform rate as indicated by the manufacturer sufficient to comply with the requirements of the test water retention of ASTM C156. Curing compound applied to vertical concrete surfaces after forms are removed shall be specially adapted to provide required coverage on the vertical surface. On nonformed surfaces, the curing compound shall be applied immediately after the disappearance of the water sheen after finishing of the concrete. Curing compound shall not be used on concrete surfaces that are to be painted, receive ceramic tile or resilient flooring, or be waterproofed. Care shall be taken not to get curing compound on construction joints, reinforcing steel, and other surfaces against which new concrete will be poured.
   3. Use of plastic film. Plastic film shall have a minimum thickness of 4 mils. It shall be placed over the wet surface of the fresh concrete as soon as possible without marring the surface and shall be weighted so that it remains in contact with all exposed surfaces of the concrete. All joints and edges shall be lapped and weighted. Any tears in the film shall be immediately repaired.
   4. Application of wet coverings weighing 9 ounces per square yard such as burlap, cotton mats, or other moisture-retaining fabrics. The covering system shall include two layers and shall be kept continuously moist so that a film of water remains on the concrete surface throughout the curing period.
   5. Use of an approved waterproof curing paper. Edges of adjacent sheets shall be overlapped several inches and tightly sealed.
   6. Ponding of water or continuous sprinkling of water is permitted. Sprinkling at intervals will not be permitted.
   7. Construction joints shall be moist cured by one of the methods listed above except by Method "2."

B. The use of moist earth, sand, hay, or another method that may discolor hardened concrete will not be permitted.

3.08 HOT WEATHER CONCRETING

A. When the atmospheric temperature exceeds 80°F during concrete placement, this section and ACI 305 shall apply in addition to all other sections of the specifications.

B. The temperature of the delivered concrete shall not exceed 85°F.

C. Care shall be exercised to keep mixing time and elapsed time between mixing and placement at a minimum. Ready-mix trucks shall be dispatched so as to avoid delay in concrete placement, and the work shall be organized to use the concrete promptly after arrival at the jobsite.

D. The subgrade, forms, and reinforcing shall be sprinkled with cool water just prior to placement of concrete. Prior to placing concrete, there shall be no standing water or puddles on the subgrade.

E. If approved by ENGINEER, an admixture for retarding the setting of the concrete may be used.

F. Exposed concrete surfaces shall be carefully protected from drying. Continuous water curing is preferred. Curing compounds shall be white pigmented.

3.09 COLD WEATHER CONCRETING

A. Conditions of this section shall apply, in addition to all other sections of the specifications, when placing concrete in cold weather. Cold weather is defined as a period when, for more than 3 successive days, the average daily temperature drops below 40°F. When temperatures above 50°F occur during more than half of any 24-hour period, the period will no longer be regarded as cold weather. The average daily temperature is the average of the highest and lowest temperature during the period from midnight to midnight. Cold weather concreting shall conform to all requirements of ACI 306.1, except as modified by the requirements of these specifications.

B. Detailed procedures for the production, transportation, placement, protection, curing, and temperature monitoring of concrete during cold weather shall be submitted to ENGINEER. Cold weather concreting shall not begin until these procedures have been accepted.

C. All concrete materials, forms, ground, mixing equipment, and other surfaces with which the concrete is to come in contact shall be free from frost, and the temperature of contact surfaces shall be 35°F or above. Ground upon which concrete is to be placed shall not be frozen at any depth.

D. The mixing water and aggregates shall be heated and when entering the mixer shall have temperatures not exceeding 175°F and 80°F, respectively. Concrete temperature as mixed shall not exceed 80°F and shall typically be between 55°F and 70°F. Concrete, when placed in the forms, shall have a temperature of not less than 50°F.

E. Freshly placed concrete shall be protected by adequate covering, insulating, or housing and heating. If heating is used, ambient temperature inside the housing shall be maintained at a minimum of 70°F for 3 days or 50°F for 5 days. The maximum ambient temperature during curing shall not exceed 80°F. If insulating methods are used, recommendations contained in ACI 306R shall be followed. Surface temperature shall be maintained at 50°F for 7 days. After the curing period, the temperature of the concrete shall be reduced uniformly at a rate not to exceed 40°F per 24 hours until outside air temperature is reached. Heating of enclosure shall continue if it is anticipated that the outside air temperature will drop more than 20°F in the next 24 hours. The concrete temperature shall be obtained by attaching a thermometer provided by CONTRACTOR to the concrete surface. Concrete shall be kept moist.

F. If heating is used, the housing shall be constructed weathertight and shall be constructed in a manner that will provide uniform air circulation and air temperatures over the complete concrete area that is being cured. Special attention shall be given to the edges and ends of a concrete pour with the housing extending at least 5 feet beyond any concrete surface being protected. The housing shall be in place and heat applied within 2 hours after concrete placement.

G. Heating may be by steam or hot air. Heaters shall be vented to outside of the housing. Open burning salamanders will not be permitted. Heating devices shall not be placed so close to the concrete as to cause rapid drying or discoloration from smoke.

H. If heating is used, CONTRACTOR shall provide sufficient 24-hour inspection of the heaters to ensure compliance with the above-specified temperature requirements during the curing period. CONTRACTOR shall provide maximum-minimum thermometers for ENGINEER's use.

I. The use of calcium chloride, salts, or other chemical admixtures for the prevention of freezing is prohibited.

J. Salts or other deleterious materials shall not be used on temporary or permanent structures above concrete surfaces that are being placed, finished, or cured.

3.10 FINISHING

A. Flat Work:
1. Floated Finish: Place, consolidate, strike off, and level concrete eliminating high spots and low spots. Do not work concrete further until it is ready for floating. Begin floating with a hand float, a bladed power float equipped with float shoes, or a powered disk float when the bleed water sheen has disappeared and the surface has stiffened sufficiently to permit the operation. Immediately refloat the slab to a uniform texture.
2. Tolerance for concrete floors shall be 1/4 inch within 10 feet in any direction. Straight edge shall be furnished by CONTRACTOR.
3. Broom or Belt Finish: Immediately after concrete has received a floated finish, give the concrete surface a coarse transverse scored texture by drawing a broom or burlap belt across the surface.
4. V-Groove Finish: Immediately after concrete has received a floated finish, use a grooving tool to provide the V-groove texture as shown on the drawings.
5. The above finishes shall be used in the following locations:
   a. Broom or Belt Finish: Channel slabs, sidewalks, and tops of walls.
   b. V-Groove Finish: Access ramp to channel.

B. Formed Surfaces:
1. Within 2 days after removing forms and prior to application of a curing compound, all concrete surfaces shall be observed and any poor joints, voids, stone pockets, or other defective areas shall be patched at once before the concrete is thoroughly dry. Defective areas shall be chipped away to remove all loose and partially bonded aggregate. The area shall be thoroughly wetted and filled with as dry as practical mortar mix placed to slightly overfill the recess. Mortar shall include a bonding agent. After partial set has taken place, the excess mortar shall be removed flush with the surface on the concrete using a wood float. All patching shall be cured, protected, and covered as specified for concrete. All cracks, leaks, or moist spots that appear shall be repaired. No extra compensation will be allowed CONTRACTOR for such work.
2. The exterior or removal portion of nonremovable ties shall be removed with the use of a special tool designed for this purpose. Cutting or chipping of concrete to permit removal of exterior portion will not be permitted.
3. For nonremovable ties, tie rod holes left by the removal of the exterior portion of the tie and cone shall be thoroughly wetted and filled by ramming with as dry as practical mortar mix in such a manner as to insure complete filling of the hole. Mortar shall include a bonding agent. All patching shall be cured, protected, and covered as specified for concrete. The holes are to be filled immediately after removal of the exterior portion of the tie.
4. Holes left by removable ties shall be filled by installing a neoprene plug near the center of the wall. The balance of the hole shall be filled with mortar as specified above to within 1 inch of the face of the wall. The remainder of the hole shall be filled with a waterproofing compound.

5. All finished or formed surfaces shall conform accurately to the shape, alignment, grades, and sections as shown or prescribed by ENGINEER. All surfaces shall be free from fins, bulges, ridges, offsets, honeycombing, or roughness. All sharp angles, where required, shall be rounded or beveled. The surface of the concrete shall be given the following finish immediately after form stripping:
   a. Finish shall have surface imperfections less than 3/8 inches in any dimension. Surface imperfections greater than 3/8 inches shall be repaired or removed and the affected areas neatly patched.
   b. Finish D shall be the finish for surfaces that may be left as they come from the forms, except that tie holes shall be plugged and defects greater than 1/2 inch in any dimension shall be repaired. Finish D shall be provided for surfaces to be buried or covered by other construction such as masonry veneer.

C. All precautions shall be taken to protect the concrete from stains or abrasions, and any such damage shall be removed or repaired under this Contract.

3.11 LOADING OF CONCRETE STRUCTURES

A. No concrete structure or portion thereof shall be loaded with its design load until the concrete has obtained its specified 28-day compressive strength. This shall include but not be limited to vertical live load, equipment loading, water loading, groundwater loading, and backfill load. Concrete strength at time of loading shall be determined by testing field-cured concrete cylinders.

B. Extreme care shall be taken to ensure that construction loads do not exceed design loading of the structure.

3.12 TESTING AND SAMPLING

A. The following tests of fresh concrete shall be performed by CONTRACTOR. CONTRACTOR shall prepare, protect, transport, and have tested all cylinders at his expense.
   1. Sampling of concrete for slump tests, air tests, temperature tests, and for making concrete test cylinders shall be performed in accordance with ASTM C172.
   2. Cylinders:
      a. Three test cylinders shall be made for each pour less than 25 cubic yards, four test cylinders shall be made for each pour between 25 and 100 cubic yards, and eight test cylinders shall be made for each pour in excess of 100 cubic yards. Each concrete mix shall be represented by at least four cylinders for the entire job. Concrete for cylinders shall be collected near the middle of the load and/or as requested by ENGINEER.
      b. Cylinders shall be made and tested in accordance with ASTM C31 and ASTM C39, respectively. The cylinders must be kept moist and at temperatures between 60°F and 80°F and shall remain undisturbed and stored in a location free from vibration. In hot weather, the cylinders shall be covered with wet burlap and stored in a shaded area. It is CONTRACTOR's responsibility to provide a suitable protected location for storing cylinders on the jobsite.
      c. After 24 hours, the cylinders shall be transferred to an independent testing laboratory acceptable to OWNER. The cylinders shall be packed in sawdust or other cushioning material for transit to avoid any bumping or jarring of the cylinders.
      d. Cylinders shall be broken at 7 and 28 days or as requested by ENGINEER. Test results shall be mailed immediately and directly to ENGINEER. Test data shall include date and location of pour and concrete mix used.

3. Slump Test: CONTRACTOR shall make one slump test near the beginning of all pours with two tests being made for all pours in excess of 25 yards or as requested by ENGINEER. Slump tests shall conform to ASTM C143.
4. Air Test:
   a. When air-entrained concrete is used, the air content shall be checked by CONTRACTOR near the beginning of all pours with at least two checks being made for all pours in excess of 25 cubic yards, or as requested by ENGINEER.
   b. The air contents shall be checked using the pressure method in accordance with ASTM C231. The pocket-sized alcohol air indicator shall not be used unless it is first used in conjunction with the pressure method test.

B. All costs of additional testing and sampling of fresh or hardened concrete needed because of suspected or actual violation of the specifications shall be borne by CONTRACTOR.

3.13 RECORDS

A. A record is to be kept of all concrete work. The record shall include the date, location of pour, concrete mix, slump, air content, test cylinder identification, concrete temperature, and ambient air temperature. In addition, for cold weather concreting the record shall include the daily maximum-minimum thermometer readings of all thermometers during the entire curing period for all concrete pours. The project representative will keep this record, and CONTRACTOR shall assist in obtaining needed information.

3.14 SIDEWALKS AND EXTERIOR SLABS

A. Sidewalks shall be constructed where shown on the drawings. They shall be a minimum of 5 inches thick and shall slope away from buildings or structures at a rate of 1/4 inch per foot. Concrete shall be as previously specified. Sidewalks shall be constructed on 3 inches of compacted granular fill. They shall have tooled joints of 1-inch minimum depth at approximately 5-foot centers with 1/2-inch preformed expansion joint filler at approximately 25-foot centers with one at all corners and located anywhere sidewalks abut structures and buildings.

3.15 CONCRETE REMOVAL AND PATCHING

A. All areas disturbed as a result of concrete removal or repair shall be patched as specified in Bonding to Existing Concrete.

END OF SECTION

SECTION 03350

CRYSTALLINE WATERPROOFING

PART 1–GENERAL

1.01 SUMMARY

A. Work Includes: Crystalline waterproofing additive to concrete, crystalline waterproofing slurry, and dry pack products for construction joints.

B. Related Sections and Divisions: Applicable provisions of Division 1 shall govern work in this section.

1.02 REFERENCES

A. U.S. Army Corps of Engineers CRD-C48–Permeability of Concrete.

B. European Standard EN-12390-8–Testing hardened concrete– Depth of Penetration of Water Under Pressure.

C. U.S. Bureau of Reclamation–Procedure for Length Change of Hardened Concrete Exposed to Alkali Sulfates.

D. ASTM C666–Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing.

E. ASTM C672–Standard Test Method for Scaling Resistance of Concrete Surfaces Exposed to Deicing Chemicals.

F. ASTM C39–Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.

G. ASTM C157–Standard Test Method for Length Change of Hardened Hydraulic-Cement Mortar and Concrete.

H. NSF/ANSI Standard 61–Drinking Water System Components–Health Effects.

I. SO 9001–Quality Management Systems Requirements.

1.03 SYSTEM DESCRIPTION

A. Crystalline Waterproofing Additive: Concrete waterproofing system shall be of the crystalline type, defined by the ACI 212.3R–10 Report on Chemical Admixtures for Concrete as a "PRAH" type hydrophilic admixture. It shall react such that it chemically controls and permanently fixes a non-soluble crystalline structure throughout the capillary voids of the concrete. The system shall cause the concrete to become sealed against the penetration of liquids from any direction, and shall protect the concrete from deterioration due to harsh environmental conditions.

1.04 SYSTEM PERFORMANCE REQUIREMENTS

A. Testing Requirements: Crystalline waterproofing system shall be tested in accordance with the following standards and conditions, and the testing results shall meet or exceed the performance requirements as specified herein. Independent tests verifying these results shall be submitted prior to approval.

B. Independent Laboratory: Testing shall be performed by an independent laboratory meeting the requirements of the recognized specifying body of the country in which the testing is performed. Testing laboratory shall obtain all concrete samples and waterproofing product samples.

C. Crystalline Formation: Crystallizing capability of waterproofing system shall be evidenced by independent SEM (Scanning Electron Microscope) photographs showing crystalline formations within the concrete matrix at a magnification no greater than 2000 times.

D. Water Permeability: Independent testing shall be performed in accordance with U.S. Army Corps of Engineers CRD-C48–Mod "Permeability of Concrete" and the European Standard EN-12390-8. Under CRD-C48 treated concrete samples shall be pressure tested to 150 psi (350 foot head of water) or 1.05 MPa (106 m head of water). The treated samples shall exhibit no measurable leakage against control samples which shall exhibit full saturation and measurable leakage. EN-12390-8 testing shall show at least a 75% reduction in depth of water penetration for Admixture treated concrete as compared to the control concrete.

E. Petroleum Product Permeability: Independent testing shall be performed in accordance with the European EN–12390-8. Treated samples shall show a more than an 80% reduction in depth of penetration for both diesel and unleaded gasoline as compared to a control concrete.

F. Acid Resistance: Independent testing shall be performed to determine "Sulfuric Acid Resistance of Concrete Specimens." Treated concrete samples (dosage rates of 3%) shall be and tested against untreated control samples after 40 days of curing. All samples shall be immersed in 7% sulfuric acid and weighed daily until a control sample reaches a weight loss of 50%. At this time on final weighing the percentage weight loss of the 3% treated samples shall be 40% or lower.

G. Sulfate Resistance: Independent testing shall be performed in accordance with US Bureau of Reclamation–Procedure for Length Change of Hardened Concrete Exposed to Alkali Sulfates for weight loss and length change. Samples exposed to Ammonium Sulfate solution for 25 weeks shall show a weight loss of at least 25% less than the control concrete and a length change of –0.01% or less than the control.

H. Freeze Thaw Resistance Testing: Independent testing in accordance with ASTM C666 for durability of air entrained treated samples shall show at least a 60% improvement for treated concrete versus that of a control concrete when subjected to 250 freeze thaw cycles.

I. Salt Scaling Resistance: Independent testing in accordance with ASTM C672 for salt scaling resistance shall show no visible scaling for treated sample versus a control sample which shall show showing scaling to a depth of at least 0.5 mm when samples are subjected to 25 freeze thaw cycles.

J. Compressive Strength: Independent testing shall be performed in accordance with ASTM C39 "Compressive Strength of Cylindrical Concrete Specimens." Concrete samples containing the crystalline waterproofing additive shall be tested against untreated control sample. At 28 days, the treated samples shall exhibit an increase in compressive strength over the control sample.

K. Concrete Shrinkage: Independent testing in accordance with ASTM C-157 for concrete shrinkage shall show neutral to reduced shrinkage for admixture modified concrete as compared to a control sample.

L. Fire Testing: Independent testing in accordance with a recognized international standard for fire testing shall show negligible difference between admixture treated concrete versus control concrete when slabs are exposed to a hydrocarbon fire.

M. Potable Water Approval: Independent testing shall be performed in accordance with NSF Standard 61, and approved for use of waterproofing material on structures holding potable water shall be evidenced by NSF certification.

1.05 SUBMITTALS

A. Product Data: Submit product data, including manufacturer's specifications, installation instructions, and general recommendations for waterproofing applications. Also include manufacturer's certification or other data substantiating that products comply with requirements of Contract Documents.

B. Test Reports: Submit, for acceptance, complete test reports from approved independent testing laboratories certifying that waterproofing system conforms to performance characteristics and testing requirements specified herein.

C. Manufacturer's Certification: Provide certificate signed by manufacturer or manufacturer's representative certifying that the materials to be installed comply in all respects with the requirements of this specification.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer to have no less than 10 years' experience in manufacturing the crystalline waterproofing additive for the required work, and be capable of providing field service representation during construction phase. Manufacturers that cannot provide the performance test data specified herein will not be considered for the project. Manufacturer to be ISO 9001 certified.

B. Applicator: Installer of crystalline waterproofing additive shall be approved by the manufacturer or manufacturer's representative in writing.

C. Technical Consultation: The waterproofing manufacturer's representative shall provide technical consultation on waterproofing application.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.

B. Delivery: Deliver packaged waterproofing materials to project site in original undamaged containers, with manufacturer's labels and seals intact.

C. Storage: Store waterproofing materials in dry, enclosed location, at temperature and humidity conditions recommended by manufacturer.

PART 2–PRODUCTS

2.01 MATERIALS

A. Acceptable Manufacturer: Xypex Chemical Corporation, or equal.

B. Proprietary Products: Crystalline waterproofing additives as follows:
1. Crystalline waterproofing admixture for concrete shall be Xypex Admix C-500, Xypex Admix C-1000, or equal.
2. Crystalline waterproofing concentrate additive for waterproofing construction joints and cold joints shall be Xypex Concentrate, or equal.

C. Substitutions: No substitutions will be considered without submission of test data proving that performance of requested substitute product is equal or better than the specified materials and meets the specification requirements of this section.

D. Source Quality: Obtain proprietary crystalline waterproofing products from a single manufacturer.

2.02 DOSAGE AND MIXING

A. General: Xypex Admix, or equal, must be added to concrete mix at time of batching.

B. Dosage Rate: Under normal conditions, the crystalline waterproofing powder shall be added to the concrete mix at a rate of 3% by weight of Portland cement content. For enhanced chemical protection or meeting specific project requirements, consult with manufacturer or its authorized representative to determine appropriate dosage rates.

C. Waterproofing Construction Joints and Cold Joints Between Pours: Xypex Concentrate, or equal, single coat crystalline waterproofing slurry; proprietary compound of Portland cement, silica sand and active chemicals, mixed with water at 3 parts powder to 1 part water or in proportions recommended by manufacturer to achieve full coverage with application method used. Application rate: 2.0 lb/sq yd.

D. Dry Pack Joint Compound: Dry pack consistency mixture of Xypex Concentrate, or equal; proprietary compound of Portland cement, silica sand and active chemicals; and water at 6 parts powder to 1 part water or in proportions recommended by manufacturer.

PART 3–EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

A. Compliance: Comply with manufacturer's product data regarding installation, including technical bulletins, product catalogue, installation instructions and product packaging labels.

3.02 PROJECT CONDITIONS

A. Setting Time and Strength: Some retardation of set may occur when using concrete containing crystalline waterproofing admixture. The amount of retardation will depend upon the concrete mix design, the dosage rate of the Admix, temperature of concrete and climatic conditions. Concrete containing crystalline waterproofing admixture may develop higher ultimate strengths than plain concrete. Conduct trial mixes under project conditions to determine setting time and strength of the concrete. Consult with manufacturer or manufacturer's representative regarding concrete mix design, project conditions and proper dosage rate.

3.03 APPLICATION

A. General: Crystalline waterproofing admixture shall be added to the concrete mix at time of batching. Thorough blending of the crystalline waterproofing admixture throughout the concrete mix is essential for correct performance of the product and, therefore, care should be taken to ensure that a homogeneous mixture is obtained.

B. Concrete Batching and Mixing: Procedures for mixing will vary according to type of batch plant operation and equipment.
   1. Ready Mix Plant - Dry Batching Operation: Add crystalline waterproofing admixture powder to drum of ready-mix truck, then add 60% to 70% of required water along with 300 to 500 pounds of aggregate. Mix the materials for 2 to 3 minutes to ensure that the Admix is distributed evenly throughout the mix water. Add balance of materials to the ready-mix truck and mix in accordance with standard batch practices.
   2. Ready Mix Plant - Central Mix Operation: Mix crystalline waterproofing admixture with water to form a very thin slurry (e.g. 15 to 20 pounds or 6.75 to 9 kg of powder mixed with 3 gallons or 13.6 liters of water). Pour the required amount of material in drum of ready-mix truck. The aggregate, cement and water should be batched and mixed in the plant in accordance with standard practices (taking into account the quantity of water that has already been placed in the ready-mix truck). Pour the concrete into the truck and mix for at least 5 minutes to ensure even distribution of the crystalline waterproofing admixture throughout the concrete.
   3. Pre-cast Batch Plant - Pan Type Mixer: Add crystalline waterproofing admixture to the rock and sand, then mix thoroughly for 2 to 3 minutes before adding the cement and water. The total concrete mass should be blended using standard practices.

C. Construction and Cold Joints: One coat of crystalline waterproofing admixture concentrate slurry at a rate of 2 lb/sq yard is to be applied to the entire concrete substrate surface where the existing and new concrete will interface. Allow slurry to set or dry. No curing is required.

3.04 CURING

A. General: Concrete containing crystalline waterproofing admixture shall be moist cured in accordance with ACI Reference 308, "Standard Practice for Curing Concrete."

B. Curing Compounds: Curing compounds may be used in the event that project requirements or conditions prevent moist curing. Curing compounds shall comply with ASTM C-309.

3.05 PROTECTION

A. Protection: Protect installed product and finished surfaces from damage during construction.

3.06 INTERFACE WITH OTHER MATERIALS

A. Backfilling: Normal backfilling procedures may be used after concrete has been cured for at least seven days. If backfill takes place within seven days after concrete placement, then backfill material shall be moist so as not to draw moisture from the concrete. In no event shall backfilling take place before concrete has gained sufficient strength to withstand the applied load.

END OF SECTION

SECTION 05501

STOP GATES

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: Stop gates and grooves.

B. Related Sections and Divisions: Applicable provisions of Standard Specifications Part I shall govern work in this section.

1.02 REFERENCES

A. AWS A2.0–USA Standard Welding Symbols.

B. AWS D1.1–Structural Welding Code–Steel.

1.03 SUBMITTALS FOR REVIEW

A. Shop Drawings: Indicate number, sizes, stiffeners, handles or handholes, anchorage, size and type of fasteners, and accessories.

B. Indicate welded connections using standard AWS A2.0 welding symbols. Indicate net weld lengths.

1.04 QUALIFICATIONS

A. Qualify welding processes and welding operators in accordance with AWS D1.1 Standard Qualifications Procedures.

1.05 STORAGE AND HANDLING

A. Store all members off the ground using pallets, platforms, or other supports.

B. Do not store materials on the structure in a manner that might cause distortion or damage to the members of the supporting structures.

C. In the event of damage, immediately make all repairs and replacements necessary at no additional cost to OWNER.

PART 2–PRODUCTS

2.01 MANUFACTURERS

A. Stop gates and frames shall be as manufactured by Whipps, Inc., Fontaine, or equal.

2.02 MATERIALS

A. Stop gates shall be fabricated of 304L stainless plate minimum 1/4-inch thick and shall be provided with handholes or handles.

B. Provide stiffeners as required to limit plate deflection to 1/720 of the span of the plate.

C. Stop gate frames shall be fabricated of 304L stainless steel.

D. Ultra-high-molecular weight-bearing bars shall provide a maximum coefficient of friction of 0.125 between plate and groove under operating head.

E. Mounting hardware shall be of stainless steel construction.

2.03 FABRICATION

A. Stop gate frames shall be assembled continuous on sides and bottom and shall incorporate ultra-high-molecular weight-bearing bars on each side of the plate. Mechanically fasten seals to prevent wearing bars from sliding out of grooves with plate.

B. Guide frames built up from plate or structural shapes will not be acceptable.

C. Mounting hardware, if required, shall be of size and type recommended by the manufacturer and shall be provided as part of the stop plate groove.

PART 3–EXECUTION

3.01 EXAMINATION

A. Correct conditions detrimental to the proper and timely completion of the work.

B. Do not proceed until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Stop gate groove shall be anchored in forms so that plate bearing surface remains in a vertical plane.

END OF SECTION

SECTION 05560

ANCHOR BOLTS AND POST-INSTALLED ANCHORS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: Expansion bolts and adhesive anchors.

B. Related Sections and Divisions: Applicable provisions of Standard Specifications Part I shall govern work in this section.

1.02 REFERENCES

A. ASTM A36/A36M–Standard Specification for Carbon Structural Steel.

B. ASTM F1554–Anchor Bolts, Steel, 36, 55, and 105-ksi yield strength.

C. ICC-ES International Code Council–Evaluation Service.

D. AC 193–Acceptance Criteria for Mechanical Anchors in Concrete Elements.

E. AC 308–Acceptance Criteria for Post-Installed Adhesive Anchors in Concrete.

F. ACI 355.2–Qualification of Post-Installed Mechanical Anchors in Concrete and Commentary.

G. ACI 355.4–Qualification of Post-Installed Adhesive Anchors in Concrete and Commentary.

PART 2–PRODUCTS

2.01 EXPANSION BOLTS

A. Expansion bolts shall be KWIK Bolt TZ by Hilti, Inc., TruBolt+ by ITW Red Head, Power-Stud + SD2, SD4, or SD6, by Powers Fastening Systems, Strong-Bolt, or Strong-Bolt 2, by Simpson Strong-Tie Anchor Systems, or approved equal.

B. Unless waived by ENGINEER for certain applications, all expansion bolts shall comply with the Wisconsin Commercial Building Code, AC 193, and ACI 355.2. They shall be ICC-ES approved for use in cracked and uncracked concrete.

C. Expansion bolts will not be permitted as substitutes for embedded anchor bolts except with the prior written acceptance of ENGINEER or where otherwise specifically called for.

D. Unless indicated otherwise on the drawings or specified, use stainless steel bolt material.

2.02 ADHESIVE ANCHORS

A. Adhesive anchors shall be HIT HY 200 by Hilti, Inc., Red Head Epcon C6+ or Red Head Epcon S7 by ITW, PE 1000+ by Powers Fastening Systems, Set-XP by Simpson Strong-Tie Anchor Systems, or approved equal.

B. Unless waived by ENGINEER for certain applications, all adhesive anchors shall comply with the Wisconsin Commercial Building Code, AC 308, and ACI 355.4. They shall be ICC-ES approved for use in cracked and uncracked concrete.

PART 3–EXECUTION

3.01 EXPANSION BOLTS

A. Unless otherwise noted on the drawings, expansion bolt edge distance and spacing shall be in accordance with manufacturer's printed installation instructions.

B. Bolt embedment shall at least equal 6-bolt diameters.

C. Installation procedures shall be in accordance with the manufacturer's printed installation instructions.

D. Where location of bolts is adjustable, reinforcing steel shall be located prior to drilling holes and bolts shall be located to clear reinforcing steel.

3.02 ADHESIVE ANCHORS

A. At locations shown on the drawings, reinforcing bars or threaded rod shall be provided in existing concrete by drilling holes, injecting epoxy adhesive, and inserting the reinforcing bar.

B. All existing surfaces to receive adhesive anchors, including the entire area in contact with the new concrete, shall be cleaned and roughened to amplitude of 1/4 inch.

C. Installation procedures shall be in accordance with the manufacturer's printed installation instructions.

D. Where location of anchors is adjustable, reinforcing steel shall be located prior to drilling holes and anchors shall be located to clear reinforcing steel.

E. CONTRACTOR shall arrange an anchor manufacturer's representative to provide on-site installation training for installation of their adhesive anchor system products. Submit documentation that all CONTRACTOR's personnel or subcontractors who install adhesive anchors have been trained prior to the announcement of anchor installation.

END OF SECTION

SOILS INFORMATION

CGC, Inc.

Construction • Geotechnical
Consulting Engineering/Testing

April 14, 2016
C15051-17

Ms. Lauren Striegl
City of Madison – Engineering Department
210 Martin Luther King, Jr. Boulevard, Room 115
Madison, WI 53710
(email: Lstriegl@cityofmadison.com)

Re: Geotechnical Exploration Report
Willow Creek Basin Dewatering
UW- Madison Campus
Madison, Wisconsin

Dear Lauren:

Construction • Geotechnical Consultants, Inc. (CGC) has completed the follow-up geotechnical exploration program to evaluate dewatering requirements for the project referenced above. An electronic copy of this report is provided for your use and is also being sent to Mr. Brett Oftedahl of Strand Associates, who is assisting you on this project. We can provide a paper copy upon request.

PROJECT AND SITE DESCRIPTIONS

We understand that a concrete-lined basin will be constructed within Willow Creek just north of Campus Drive to collect sediment from a number of storm sewers discharging upstream into the creek. The basin will be designed to allow it to be dewatered sufficiently so that sediment can be removed on a regular basis. To prevent the basin from being uplifted by buoyancy forces while being emptied, it will be protected by a dewatering system below the base, by pressure relief valves, by sufficient dead load in the structure itself, or by some combination of these techniques. This report primarily focuses on the dewatering system that would be installed below the basin for this purpose.

The proposed dimensions of the basin are approximately 200 ft long, 11.4 to 21 ft wide at the base, and 42 ft wide at the top. The basin will be about 6 ft deep, with its base at EL 844.0 ft and an overflow weir at EL 850.1 ft. Slopes will be at 1.5H:1V in the reinforced concrete sides, with slightly steeper geotextile-reinforced earthen slopes above the concrete-lined portion to match the surrounding site grades at about EL 856. An access ramp is planned on the west side to allow a small front end loader to work on the bottom of the basin while removing sediment.

SUBSURFACE CONDITIONS

Two Standard Penetration Test (SPT) soil borings were re-drilled in close proximity to the two original borings we performed for this project in September 2015. The two recent borings are designated B-1W and B-2W and were extended to 18 and 26 ft, respectively. Each borehole was then instrumented with a 2-in. diameter PVC groundwater observation well with locking protective

2921 Perry Street, Madison WI 53713
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casing. Boring 1W was screened from 13 to 18 ft within the sandy glacial till layer commonly found throughout this area, and Boring 2W was screened in the underlying sandstone bedrock from 21 to 26 ft. The borings were drilled and wells installed by Badger State Drilling (under subcontract to CGC) on March 16, 2016, using a truck-mounted, Diedrich D-120 drill-rig equipped with hollow-stem augers and an automatic SPT hammer. Elevations at the boring locations were estimated from the Dane County DCI Map website and should be considered approximate (± 1 ft). The boring locations are shown on the Boring Location Plan attached in Appendix A.

The subsurface conditions at the boring locations varied to some extent, but can be described by the following generalized soil strata, in descending order:

- About 8 ft of mixed soil ***fill*** consisting of topsoil layers, lean to organic clay, and granular strata of varying gradations, followed by

- About 11 ft of native ***sand strata*** with varying silt and gravel contents (plus a 4-ft thick stiff clay layer sandwiched between sand strata from 12 to 16 ft in Boring 2/2W), underlain by

- Highly weathered to more competent ***sandstone bedrock*** starting at about 19.5 ft and extending to the maximum depths explored in each boring.

Groundwater was encountered at about 8.5 ft below grade in both borings while drilling and at about 7 ft below the ground surface (at approximate EL 849) in the two wells about two weeks later. Groundwater levels can be expected to fluctuate with seasonal variations in precipitation, infiltration, evapotranspiration, nearby lake/creek stages as well as other factors. A more detailed description of the site soil and groundwater conditions is presented on the Soil Boring Logs (both the initial and recent borings) attached in Appendix B. The construction and development forms for the two wells are also included in the same appendix.

Baildown tests were performed on the two groundwater wells after developing them until clear water was produced in each case. The rates at which the wells recovered during the bail down tests were used to estimate the permeability of the two predominant soil strata. The permeability (or hydraulic conductivity) of the upper sandy glacial till (fine to medium sand, some silt and gravel) was calculated to be 1.3×10^{-4} cm/sec, and the permeability of the weathered sandstone layer was found to be about twice that at 2.7×10^{-4} cm/sec. In addition, we performed grain size analyses on representative samples of the sandy till and the underlying sandstone. From the gradation for the weathered sandstone we were able to estimate (by Hazen's equation for relatively clean sands with minor silt content) the permeability of the sandstone layer by this method to be about 4.0×10^{-3} cm/sec, about an order of magnitude higher than the bail down test results. Grain size analyses and bail down test reports are attached in Appendix C.

DISCUSSION AND RECOMMENDATIONS

The following section describes the site conditions and assumptions we used in our analysis of the projected dewatering volumes under both construction and post-construction conditions. Later sections describe the recommended drainage provisions below the bottom of the basin.

1. Site Conditions and Assumptions

The following conditions were used in our analysis:

- The approximate basin size was estimated to be about 40 ft wide by 200 ft long.

- With the bottom of the basin proposed at EL 844 and the concrete base slab estimated to be 1.5 ft thick and underlain by a 1-ft thick drainage layer, we assumed groundwater would need to be drawn down to about EL 841.5 ft during basin cleaning, coinciding with the bottom of the drainage blanket. For temporary dewatering during construction, we assumed the drawdown would be about a foot deeper and the excavation about 10% larger.

- We assumed the maximum high water level would be the same as the overflow weir elevation of 850.1 ft. If the lake level were higher than this, we reasoned that the basin cleanout would be deferred until the lake level dropped. We have also assumed that the groundwater level for the purpose of estimating dewatering volumes would be the same as the lake level.

- A key assumption for both dewatering estimates (construction and post-construction) is that groundwater cutoff walls or barriers would extend below the bottom of the basin on each end. For the permanent structure, this would require effectively cutting off the direct connection between Willow Creek and the drainage layer below the basin on both the upstream and downstream ends. This could be accomplished by means of sheet piles, a compacted clay barrier, a concrete cutoff wall or some combination. During construction, we assume some form of temporary cofferdam, either with sheet piles or some other method, would be required to work within the creek. *In other words, our volume estimates exclude any direct flow from Willow Creek on either the upstream or downstream sides.*

- We estimated an average permeability for the permeable sand and weathered sandstone strata underlying the site to be 5.2 x10^{-4} cm/sec. This value represents the geometric mean of the three permeability values described above (two from bail down tests and one from a correlation with grain size analysis for the weathered sandstone). A clay layer found in previous Boring 2 sandwiched between two sand

layers was conservatively ignored in our analysis, based on the assumption that it is not continuous below the basin. *The estimated permeability rates used in our analysis should be recognized as approximate only; pumping rates for long-term system design should be 'reality-checked' against actual pumping rates during construction dewatering.*

2. Estimated Groundwater Inflows

Incorporating the assumptions and conditions outlined above, we analyzed the excavation/basin as a large, single dewatering well, following procedures and formulas outline by Cedergren in *Seepage, Drainage & Flow Nets*, 1977. Based on the assumptions and conditions described above, we recommend that the long-term dewatering system be designed for a minimum *factored* inflow rate of ***90 gal/min***. As implied, this includes a factor of safety of about 3.3 above a calculated theoretical inflow rate of about 27 gal/min. As noted, this estimate is approximate and should be confirmed by measuring the actual flow rates of the dewatering sumps and wells used during construction.

We understand that if the flow through pressure relief valves is slow enough the City may try cleaning the basin without dewatering below the basin. Under this scenario, groundwater on the exterior of the basin would only be drawn down to the level of the pressure relief valves, and the estimated total, *factored* flow through pressure relief valves installed in the side slopes at EL 848.1 (2 ft below the overflow weir) would be about ***35 gal/min***. The *unfactored* estimated rate is about 12 gal/min.

The *unfactored* inflow rate (i.e., factor of safety = 1.0) during temporary construction dewatering is about ***30 gal/min***. Although means and methods of dewatering are the contractor's responsibility, we believe it would be prudent to require the contractor to submit their dewatering plan for review in advance of construction, including plans for cofferdam construction as well as contingency plans to deal with higher permeability seams/layers of sand and gravel.

3. Drainage Layer below the Basin

To effectively dewater directly below the basin to prevent it from floating up out of the ground, we recommend the following provisions be incorporated into the design of granular drainage blanket below the bottom of the basin:

1. Longitudinal drain lines should be positioned approximately 10 to 20 ft apart, as indicated on the preliminary plans. The maximum drain slot size should be equal to 0.25 inches. The drains should be equipped with cleanouts so that the lines can be jetted with water if necessary.

2. The two longitudinal, parallel drains should be cross-connected in at least three locations as a further precaution against one section becoming plugged.

3. The drainage system should be designed so that it is continuously connected to a sump that can be easily accessed when the basin is being drained. In talking with Strand, we understand they are considering designing the sump similar to a manhole or wet well.

4. We agree that pressure relief valves (PRVs) should be included in the side slopes of the basin as further protection against uplift. When properly positioned they would prevent the hydrostatic pressure below the bottom of the basin from reaching the point where uplift would occur. They would serve two purposes: 1) to protect the basin in the event it is drained from the inside without being drained from below, and 2) to potentially allow the basin to be cleaned without dewatering below if the flow through the PRVs would be minor enough to allow the sediment to be removed under partially dewatered conditions.

5. The drainage course should be *at least* 12 inches thick and conform to the gradation requirements set forth as follows:

Recommended Drainage Course Gradation
(WDOT Concrete Coarse Aggregate Size No. 1 Stone/AASHTO No. 67)

Sieve Size	% Passing
1 in.	100
3/4 in.	90-100
3/8 in.	20-55
No. 4	0-10
No. 8	0-5

6. A non-woven geotextile layer (e.g., Mirafi 160N or equivalent) is required to separate the drainage layer from the subgrade soils. It is imperative that the geotextile fabric thoroughly cover the base of the excavation and extend up the side slopes to completely envelope the stone drainage layer (except where it is covered by the concrete basin itself). The fabric should be overlapped at least 18 in. at adjacent panels. Particular attention is required at the interfaces between the fabric and the structure. Pipe and utility line penetrations through the geotextile layer should be sealed with tape to prevent movement of fine soil particles into the clear stone layer. Recommended minimum properties of the non-woven geotextile fabric are presented below.

Property	Minimum Roll Value
Grab Strength	180 lbs
Puncture Strength ASTM D3787	75 lbs
Burst Strength ASTM D3786	290 psi
Trapezoid Tear ASTM D4533	50 lbs
Maximum EOS	No. 30 sieve
Minimum Hydraulic Conductivity	1×10^{-2} cm/sec

7. The subgrade in the bottom of the creek will need to be reasonably free of water and firm enough to install the drainage layer, underlying fabric and the structure itself. We anticipate this will require up and downstream cofferdams, dewatering by sumps, well points and wells, and placement of coarse stone to stabilize the base of the excavation. Coarse clear stone would likely be best-suited for this purpose and should be protected by enveloping it in geotextile fabric (as described above) to prevent subsequent migration of fines into the voids remaining in the clear stone. Note that we envision the stone/fabric layers used for stabilizing the base to be *separate* and *in addition* to the drainage layer described above. As noted, installation of the drainage layer requires a reasonably dry, stable bottom to correctly install the fabric, stone and piping, and that is the primary purpose of the coarse stone stabilizing layer.

CONSTRUCTION CONSIDERATIONS

Due to variations in weather, construction methods and other factors, specific construction problems are difficult to predict. Soil related difficulties that could be encountered on the site are discussed below:

- Earthwork construction during the early spring or late fall could be complicated as a result of wet weather and freezing temperatures. During cold weather, exposed subgrades should be protected from freezing before basin construction. Fill should never be placed while frozen or on frozen ground.

- Excavations extending greater than 4 ft in depth below the existing ground surface should be sloped in accordance with current OSHA standards.

RECOMMENDED CONSTRUCTION MONITORING

The level of care exercised during site development will largely determine the quality of the basin subgrades. To check that earthwork proceeds in accordance with our recommendations, qualified construction inspectors should monitor the following operations:

- Dewatering, cofferdam construction and subgrade preparation;
- Drainage blanket placement; and
- Basin construction/concrete testing.

* * * * *

We trust this report addresses your present needs. General limitations regarding the conclusions and opinions presented in this report are discussed in Appendix B. If you have any questions, please contact us.

Sincerely,

CGC, Inc.

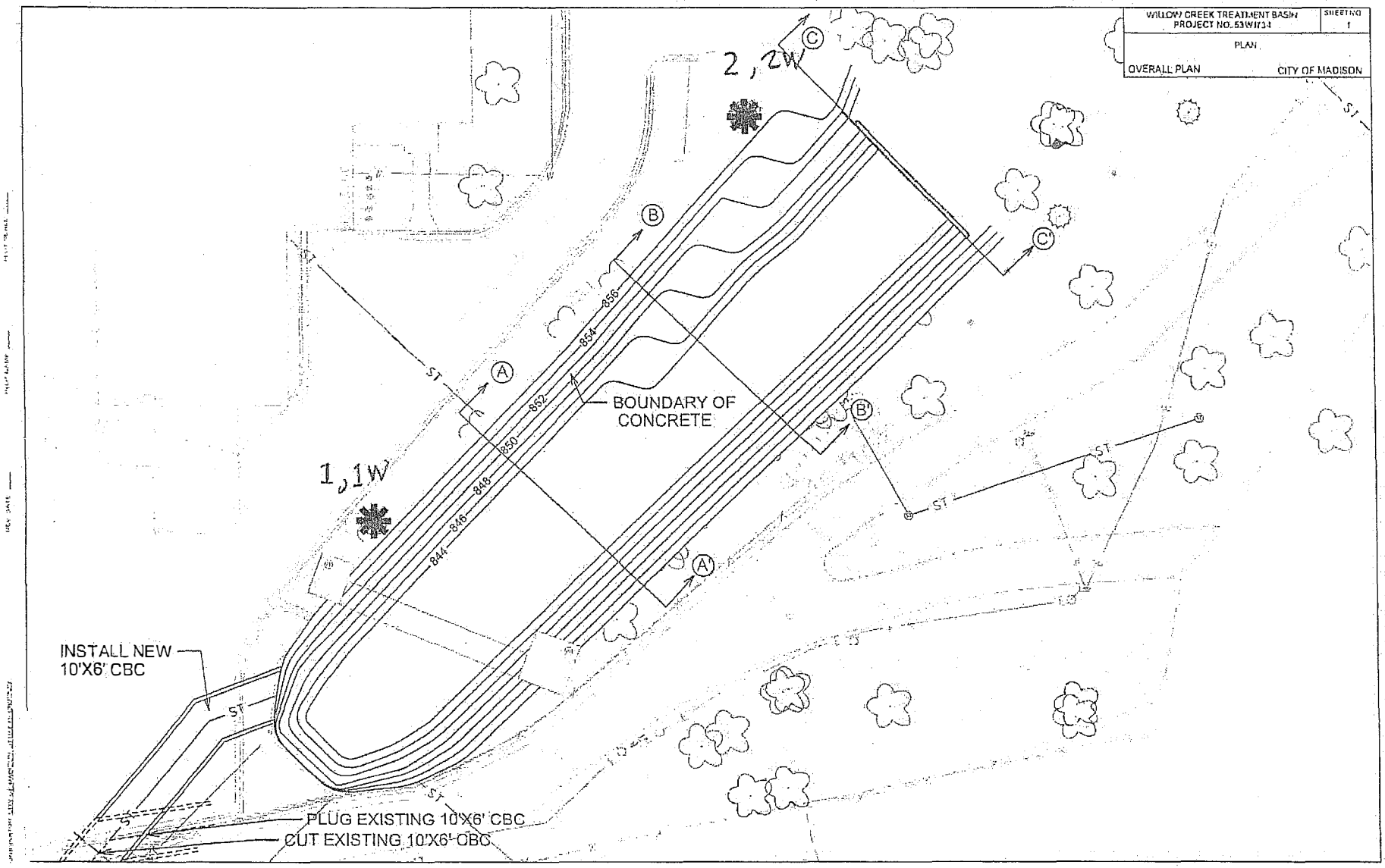
William W. Wuellner, P.E.
Senior Geotechnical Engineer

David A. Staab, P.E., LEED AP
Geotechnical Engineer

Encl: Appendix A - Soil Boring Location Plan
Logs of Test Borings (4)
Monitoring Well Construction Forms (4 pages)
Log of Test Boring-General Notes
Unified Soil Classification System
Appendix B - Document Qualifications
Appendix C - Grain Size Analyses and Baildown Test Reports

APPENDIX A

SOIL BORING LOCATION MAP
LOGS OF TEST BORINGS (4)
MONITORING WELL CONSTRUCTION FORMS (4 pages)
LOG OF TEST BORING – GENERAL NOTES
UNIFIED SOIL CLASSIFICATION SYSTEM


WILLOW CREEK TREATMENT BASIN
PROJECT NO. 53W134
SHEET NO 1
PLAN
OVERALL PLAN
CITY OF MADISON
2,2W
1,1W
BOUNDARY OF CONCRETE
INSTALL NEW 10'X6' CBC
PLUG EXISTING 10'X6' CBC
CUT EXISTING 10'X6' CBC
ST
A
A'
B
B'
C
C'
844
846
848
850
852
854
856

CGC Inc.

LOG OF TEST BORING

Project Willow Creek Basin Hydraulic Permeability

Location Madison, WI

Boring No. 1W
Surface Elevation (ft) 856±
Job No. C15051-17A
Sheet 1 of 1

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	Type	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES qu (qa) (tsf)	W	LL	PL	LI
						FILL: Black Clayey Topsoil to 0.75 in.					
1		12	M	9		Stiff, Black Organic/Lean Clay to 3 ft	(1.75)				
2		14	M	9	5	Loose to Dense, Brown and Gray Sand with Silt, Gravel and Clay to 8 ft					
3		10	M	33							
4		16	W	16	10	Medium Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
5		18	W	20	15						
					20	End Boring at 18 ft Constructed 2-in. Monitoring Well with Screen Interval from 13 ft to 18 ft					
					25						
					30						
					35						

WATER LEVEL OBSERVATIONS

While Drilling ▽ 8.5' Upon Completion of Drilling ____
Time After Drilling ____
Depth to Water ____ ▽
Depth to Cave in ____

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 3/16/16 End 3/16/16
Driller BSD Chief KD Rig D-120
Logger DD Editor ESF
Drill Method 4.25" HSA; Autohammer

CGC Inc.

LOG OF TEST BORING

Project: Willow Creek Basin

Location: Madison, WI

Boring No. 1
Surface Elevation (ft) 856±
Job No. C15051-17
Sheet 1 of 1

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	Type	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	W	LL	PL	LI
						FILL: Black Clayey Topsoil to 0.75 in.					
1		10	M	7		Stiff, Black Organic/Lean Clay to 3 ft	(1.75)	28.4			5.4
2		14	M	10	5	Loose to Medium Dense, Brown and Gray Sand with Silt, Gravel and Clay to 8 ft					
3		14	M	27							
4		14	W	13	10	Medium Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
5		12	W	22	15						
6		16	W	70	20	Very Dense, Gray Fine to Medium SAND, Some Gravel, Trace Silt (SP - Possible Weathered Bedrock)					
7		15	W	75/11"	25	Weathered to Competent, Light Brown to Gray Sandstone BEDROCK					
8		1	W	50/3"	30						
9		0	W	50/1"	35	End Boring at 35 ft					
						Backfilled with Bentonite Slurry and Chips					
					40						

WATER LEVEL OBSERVATIONS

While Drilling ▽ 8.5' Upon Completion of Drilling _____
Time After Drilling _____
Depth to Water _____ ▼
Depth to Cave in _____

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 9/30/15 End 9/30/15
Driller BSD Chief KD Rig D-120
Logger MG Editor ESF
Drill Method 4.25" HSA; Autohammer

CGC Inc.

LOG OF TEST BORING

Project: Willow Creek Basin Hydraulic Permeability

Location: Madison, WI

Boring No. 2W
Surface Elevation (ft) 856±
Job No. C15051-17A
Sheet 1 of 1

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES qu (qa) (tsf)	W	LL	PL	LI
						FILL: Black Clayey Topsoil to 0.9 in.					
1		10	M	7		Stiff to Very Stiff, Black Organic Clay to 5.5 ft	(1.5)				
						Very Soft, Brown Lean Clay to 7 ft					
2		10	M	7	5	Loose, Brown Fine to Coarse Sand and Gravel with Silt to 8 ft	(2.75)				
3		14	M	11			(0.2)				
4		14	W	10	10	Medium Dense, Brown to Gray Fine to Medium SAND, Trace Silt (SP)					
						Stiff, Light Brown Lean CLAY (CL)					
5		20	W	16	15		(1.5)				
						Medium Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
6		14	W	27							
					20	Weathered to Competent, Light Brown to Gray Sandstone BEDROCK					
7		16	W	54							
					25						
						End Boring at 26 ft					
						Constructed 2-in. Monitoring Well with Screened Interval from 21 ft to 26 ft					
					30						
					35						

WATER LEVEL OBSERVATIONS

While Drilling ▽ 8.5' Upon Completion of Drilling ____
Time After Drilling ____
Depth to Water ____ ▽
Depth to Cave in ____

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 3/16/16 End 3/16/16
Driller BSD Chief KD Rig D-120
Logger DD Editor ESF
Drill Method 4.25" HSA; Autohammer

CGC Inc.

LOG OF TEST BORING

Project: Willow Creek Basin

Location: Madison, WI

Boring No. 2
Surface Elevation (ft) 856±
Job No. C15051-17
Sheet 1 of 1

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	Type	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES qu (qa) (tsf)	W	LL	PL	LI
						FILL: Black Clayey Topsoil to 0.9 in.					
1		8	M	6		Stiff to Very Stiff, Black Organic Clay to 5.5 ft	(1.75)	29.4			7.2
2		12	M	12	5	Very Soft, Brown Lean Clay to 7 ft	(3.25)	25.3			6.9
3		12	M	6		Loose, Brown Fine to Coarse Sand and Gravel with Silt to 8 ft	(0.2)				
4		12	W	15	10	Medium Dense, Brown to Gray Fine to Medium SAND, Trace Silt (SP)					
5		16	W	20	15	Stiff, Light Brown Lean CLAY (CL)	(1.5)				
6		12	W	22	20	Medium Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
7		14	W	36	25	Weathered to Competent, Light Brown to Gray Sandstone BEDROCK					
8		12	W	90/10"	30						
9		1	W	50/2"	35						
						End Boring at 35 ft					
					40	Backfilled with Bentonite Slurry and Chips					

WATER LEVEL OBSERVATIONS

While Drilling ▽ 8.5' Upon Completion of Drilling _____
Time After Drilling _____
Depth to Water _____ ▽
Depth to Cave in _____

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 9/30/15 End 9/30/15
Driller BSD Chief KD Rig D-120
Logger MG Editor ESF
Drill Method 4.25" HSA; Autohammer

D-70

CGC, Inc.

LOG OF TEST BORING
General Notes

DESCRIPTIVE SOIL CLASSIFICATION

Grain Size Terminology

Soil Fraction	Particle Size	U.S. Standard Sieve Size
Boulders	Larger than 12"	Larger than 12"
Cobbles	3" to 12"	3" to 12"
Gravel: Coarse	¾" to 3"	¾" to 3"
Fine	4.76 mm to ¾"	#4 to ¾"
Sand: Coarse	2.00 mm to 4.76 mm	#10 to #4
Medium	0.42 to mm to 2.00 mm	#40 to #10
Fine	0.074 mm to 0.42 mm	#200 to #40
Silt	0.005 mm to 0.074 mm	Smaller than #200
Clay	Smaller than 0.005 mm	Smaller than #200

Plasticity characteristics differentiate between silt and clay.

General Terminology

Physical Characteristics
Color, moisture, grain shape, fineness, etc.
Major Constituents
Clay, silt, sand, gravel
Structure
Laminated, varved, fibrous, stratified, cemented, fissured, etc.
Geologic Origin
Glacial, alluvial, eolian, residual, etc.

Relative Density

Term	"N" Value
Very Loose	0 - 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	Over 50

Relative Proportions Of Cohesionless Soils

Proportional Term	Defining Range by Percentage of Weight
Trace	0% - 5%
Little	5% - 12%
Some	12% - 35%
And	35% - 50%

Consistency

Term	q_u-tons/sq. ft
Very Soft	0.0 to 0.25
Soft	0.25 to 0.50
Medium	0.50 to 1.0
Stiff	1.0 to 2.0
Very Stiff	2.0 to 4.0
Hard	Over 4.0

Organic Content by Combustion Method

Soil Description	Loss on Ignition
Non Organic	Less than 4%
Organic Silt/Clay	4 – 12%
Sedimentary Peat	12% - 50%
Fibrous and Woody Peat	More than 50%

Plasticity

Term	Plastic Index
None to Slight	0 - 4
Slight	5 - 7
Medium	8 - 22
High to Very High	Over 22

The penetration resistance, N, is the summation of the number of blows required to effect two successive 6" penetrations of the 2" split-barrel sampler. The sampler is driven with a 140 lb. weight falling 30" and is seated to a depth of 6" before commencing the standard penetration test.

SYMBOLS

Drilling and Sampling

CS – Continuous Sampling
RC – Rock Coring: SizeAW, BW, NW, 2"W
RQD – Rock Quality Designation
RB – Rock Bit/Roller Bit
FT – Fish Tail
DC – Drove Casing
C – Casing: Size 2 ½", NW, 4", HW
CW – Clear Water
DM – Drilling Mud
HSA – Hollow Stem Auger
FA – Flight Auger
HA – Hand Auger
COA – Clean-Out Auger
SS - 2" Dia. Split-Barrel Sample
2ST – 2" Dia. Thin-Walled Tube Sample
3ST – 3" Dia. Thin-Walled Tube Sample
PT – 3" Dia. Piston Tube Sample
AS – Auger Sample
WS – Wash Sample
PTS – Peat Sample
PS – Pitcher Sample
NR – No Recovery
S – Sounding
PMT – Borehole Pressuremeter Test
VS – Vane Shear Test
WPT – Water Pressure Test

Laboratory Tests

q_p – Penetrometer Reading, tons/sq ft
q_u – Unconfined Strength, tons/sq ft
W – Moisture Content, %
LL – Liquid Limit, %
PL – Plastic Limit, %
SL – Shrinkage Limit, %
LI – Loss on Ignition
D – Dry Unit Weight, lbs/cu ft
pH – Measure of Soil Alkalinity or Acidity
FS – Free Swell, %

Water Level Measurement

▽ - Water Level at Time Shown
NW – No Water Encountered
WD – While Drilling
BCR – Before Casing Removal
ACR – After Casing Removal
CW – Cave and Wet
CM – Caved and Moist

Note: Water level measurements shown on the boring logs represent conditions at the time indicated and may not reflect static levels, especially in cohesive soils.

CGC, Inc.

Madison - Milwaukee

Unified Soil Classification System

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

COARSE-GRAINED SOILS (more than 50% of material is larger than No. 4 sieve size)			
GRAVELS More than 50% of coarse fraction larger than No. 4 sieve size	Clean Gravels (Less than 5% fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
	Gravels with fines (More than 12% fines)	GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
SANDS 50% or more of coarse fraction smaller than No. 4 sieve size	Clean Sands (Less than 5% fines)	SW	Well-graded sands, gravelly sands, little or no fines
		SP	Poorly graded sands, gravelly sands, little or no fines
	Sands with fines (More than 12% fines)	SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS (50% or more of material is smaller than No. 200 sieve size.)			
SILTS AND CLAYS Liquid limit less than 50%		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silty clays of low plasticity
SILTS AND CLAYS Liquid limit 50% or greater		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS		PT	Peat and other highly organic soils

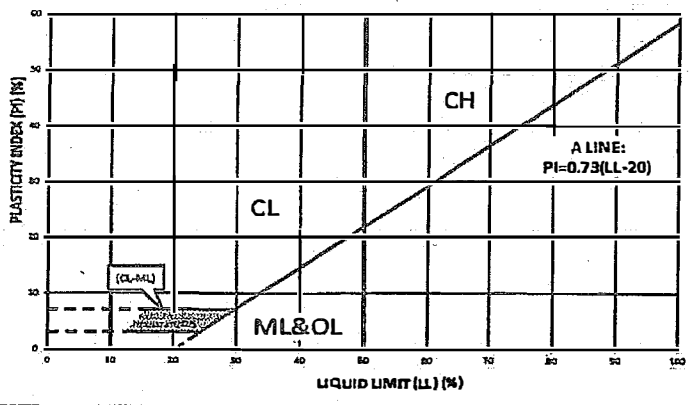
LABORATORY CLASSIFICATION CRITERIA

GW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_C = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3	
GP	Not meeting all gradation requirements for GW	
GM	Atterberg limts below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
GC	Atterberg limts above "A" line or P.I. greater than 7	
SW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_C = \frac{D_{30}}{D_{10} \times D_{60}}$ between1 and 3	
SP	Not meeting all gradation requirements for GW	
SM	Atterberg limits below "A" line or P.I. less than 4	Limits plotting in shaded zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
SC	Atterberg limits above "A" line with P.I. greater than 7	

Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows:

Less than 5 percent ..... GW, GP, SW, SP
More than 12 percent ..... GM, GC, SM, SC
5 to 12 percent ..... Borderline cases requiring dual symbols

PLASTICITY CHART



MONITORING WELL CONSTRUCTION FORMS (4 pages)

State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☑

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

Facility/Project Name: WILLOW CREEK HYD. PROJ.	Local Grid Location of Well: ft. ☐N. ☐S. ft. ☐E. ☐W.	Well Name: MW-1
Facility License, Permit or Monitoring No.	Local Grid Origin ☐ (estimated: ☐) or Well Location ☐ Lat. ° ' " Long. ° ' " or	Wis. Unique Well No. / DNR Well ID No.
Facility ID	St. Plane ft. N, ft. E. S/C/N	Date Well Installed: 2/16/2016 (m m d d y y y y)
Type of Well: Well Code 1	Section Location of Waste/Source: 1/4 of 1/4 of Sec, T. N, R. ☐E ☐W	Well Installed By: Name (first, last) and Firm: BADGER STATE DRILLING CO. Kevin Drost
Distance from Waste/Source ft. / Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known	Gov. Lot Number

A. Protective pipe, top elevation 3' ft. MSL
B. Well casing, top elevation 2.5' ft. MSL
C. Land surface elevation ft. MSL
D. Surface seal, bottom ft. MSL or ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis performed? ☐ Yes ☐ No

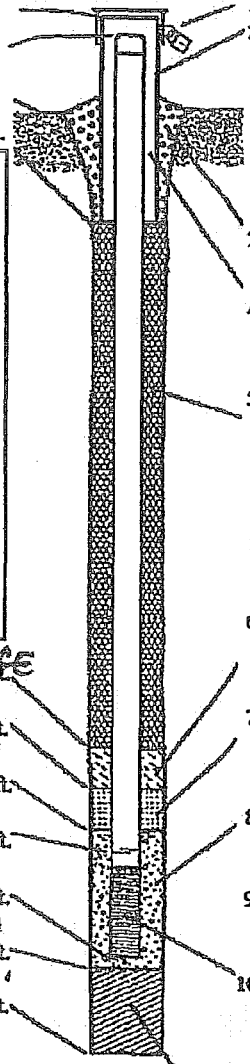
14. Drilling method used: Rotary ☐ 50
Hollow Stem Auger ☑ 41
Other ☐

15. Drilling fluid used: Water ☐ 02 Air ☐ 01
Drilling Mud ☐ 03 None ☑ 99

16. Drilling additives used? ☐ Yes ☑ No
Describe

17. Source of water (attach analysis, if required):

E. Bentonite seal, top ft. MSL or SURFACE ft.
F. Fine sand, top ft. MSL or — ft.
G. Filter pack, top ft. MSL or 12.5' ft.
H. Screen joint, top ft. MSL or 13' ft.
I. Well bottom ft. MSL or 18' ft.
J. Filter pack, bottom ft. MSL or 18.5' ft.
K. Borehole, bottom ft. MSL or 18.5' ft.
L. Borehole, diameter 8.0 in.
M. O.D. well casing 2.38 in.
N. I.D. well casing 2.0 in.



1. Cap and lock? ☑ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 4 in.
b. Length: 5 ft.
c. Material: Steel ☑ 04 Other ☐
d. Additional protection? ☐ Yes ☐ No
If yes, describe:
3. Surface seal: Bentonite ☑ 30 Concrete ☐ 01 Other ☐
4. Material between well casing and protective pipe: Bentonite ☐ Other ☑ 30
FILTER SAND
5. Annular space seal: a. Granular/Chipped Bentonite ☐ 33
b. ____ Lbs/gal mud weight... Bentonite-sand slurry ☐ 35
c. ____ Lbs/gal mud weight..... Bentonite slurry ☐ 31
d. ____ % Bentonite ..... Bentonite-cement grout ☐ 50
e. ____ ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01 Tremie pumped ☐ 02 Gravity ☐ 08
6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐1/4 in. ☑3/8 in. ☐1/2 in. Bentonite chips ☐ 32
c. Other ☐
7. Fine sand material: Manufacturer, product name & mesh size
a. OMNI #7
b. Volume added ____ ft^3
8. Filter pack material: Manufacturer, product name & mesh size
a. OMNI #6
b. Volume added ____ ft^3
9. Well casing: Flush threaded PVC schedule 40 ☑ 23 Flush threaded PVC schedule 80 ☐ 24 Other ☐
10. Screen material: SCH 40 PVC
a. Screen type: Factory cut ☑ 11 Continuous slot ☐ 01 Other ☐
b. Manufacturer MONITOR
c. Slot size: 0.010 in.
d. Slotted length: 5 ft.
11. Backfill material (below filter pack): None ☑ 14 Other ☐

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: [signature] Firm: Badger State Drilling, Inc.

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

D-74

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☑

Facility/Project Name	County Name	Well Name
WILLOW RIVER HYD RR CAL	JANE	MW-1
Facility License, Permit or Monitoring Number	**County Code**	**Wis. Unique Well Number**	**DNR Well ID Number**
		VY801	

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method

surged with bailer and bailed	☐	41
surged with bailer and pumped	☑	61
surged with block and bailed	☐	42
surged with block and pumped	☐	62
surged with block, bailed and pumped	☐	70
compressed air	☐	20
bailed only	☐	10
pumped only	☐	51
pumped slowly	☐	50
Other _____	☐	

3. Time spent developing well 38 min.

4. Depth of well (from top of well casing) 20.9 ft.

5. Inside diameter of well 2.0 in.

6. Volume of water in filter pack and well casing ____.__ gal.

7. Volume of water removed from well 26.0 gal.

8. Volume of water added (if any) ____.__ gal.

9. Source of water added _____

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 9.8 ft.	13.08 ft.
Date	b. 03/16/2016 (m m d d y y y y)	03/16/2016 (m m d d y y y y)
Time	c. 03:07 ☐ a.m. ☒ p.m.	03:45 ☐ a.m. ☒ p.m.
12. Sediment in well bottom	____.__ inches	____.__ inches
13. Water clarity	Clear ☐ 10 Turbid ☑ 15	Clear ☑ 20 Turbid ☐ 25
	(Describe) LT. BR. COLOR	(Describe)

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids ____.__ mg/l ____.__ mg/l

15. COD ____.__ mg/l ____.__ mg/l

16. Well developed by: Name (first, last) and Firm
First Name: Last Name:
Firm:

17. Additional comments on development:

Name and Address of Facility Contact/Owner/Responsible Party
First Name: _____ Last Name: _____
Facility/Firm: _____
Street: _____
City/State/Zip: _____

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: Mark A Garwick
Print Name: Mark A. Garwick
Firm: Badger State Drilling, Inc.

NOTE: See instructions for more information including a list of county codes and well type codes.

D-75

State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☐ Other ☑

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

Facility/Project Name: WILLOW CREEK HYD. PROBE.	Local Grid Location of Well: ____ ft. ☐N. ☐S. ____ ft. ☐E. ☐W.	Well Name: MW-2
Facility License, Permit or Monitoring No.	Local Grid Origin ☐ (estimated: ☐) or Well Location ☐ Lat. ° ' " Long. ° ' " or	Wis. Unique Well No. / DNR Well ID No.
Facility ID	St. Plane ____ ft. N, ____ ft. E. S/C/N	Date Well Installed: 03/16/2016 (m m d d y y y y)
Type of Well: Well Code ____	Section Location of Waste/Source: ____ 1/4 of ____ 1/4 of Sec. ____, T. ____ N, R. ____ ☐E ☐W	Well Installed By: Name (first, last) and Firm: BRADLEY STATE DRILLING CO. Kevin Dierst
Distance from Waste/Source ____ ft. / Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known	Gov. Lot Number: ____

A. Protective pipe, top elevation 2.5' ft. MSL

B. Well casing, top elevation 2.0' ft. MSL

C. Land surface elevation ____ ft. MSL

D. Surface seal, bottom ____ ft. MSL or ____ ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis performed? ☐ Yes ☐ No

14. Drilling method used: Rotary ☐ 50 Hollow Stem Auger ☑ 41 Other ☐

15. Drilling fluid used: Water ☐ 02 Air ☐ 01 Drilling Mud ☐ 03 None ☑ 99

16. Drilling additives used? ☐ Yes ☑ No

Describe ____

17. Source of water (attach analysis, if required):

E. Bentonite seal, top ____ ft. MSL or SURFACE ft.

F. Fine sand, top ____ ft. MSL or ____ ft.

G. Filter pack, top ____ ft. MSL or 30.5' ft.

H. Screen joint, top ____ ft. MSL or 21' ft.

I. Well bottom ____ ft. MSL or 26' ft.

J. Filter pack, bottom ____ ft. MSL or 28' ft.

K. Borehole, bottom ____ ft. MSL or 28' ft.

L. Borehole, diameter 8.0 in.

M. O.D. well casing 2.38 in.

N. I.D. well casing 2.0 in.

1. Cap and lock? ☑ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 4 in.
b. Length: ____ ft.
c. Material: Steel ☑ 04 Other ☐
d. Additional protection? ☐ Yes ☐ No
If yes, describe: ____

3. Surface seal: Bentonite ☑ 30 Concrete ☐ 01 Other ☐

4. Material between well casing and protective pipe: FILTER SAND Bentonite ☐ 30 Other ☑

5. Annular space seal: a. Granular/Chipped Bentonite ☐ 33
b. ____ Lbs/gal mud weight... Bentonite-sand slurry ☐ 35
c. ____ Lbs/gal mud weight..... Bentonite slurry ☐ 31
d. ____ % Bentonite ..... Bentonite-cement grout ☐ 50
e. ____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01 Tremie pumped ☐ 02 Gravity ☐ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☑ 3/8 in. ☐ 1/2 in. Bentonite chips ☐ 32
c. ____ Other ☐

7. Fine sand material: Manufacturer, product name & mesh size
a. OMYA #7
b. Volume added ____ ft^3

8. Filter pack material: Manufacturer, product name & mesh size
a. OMYA #5
b. Volume added ____ ft^3

9. Well casing: Flush threaded PVC schedule 40 ☑ 23 Flush threaded PVC schedule 80 ☐ 24 Other ☐

10. Screen material: SCH 40 PVC
a. Screen type: Factory cut ☑ 11 Continuous slot ☐ 01 Other ☐
b. Manufacturer MONADNOCK
c. Slot size: 0.010 in.
d. Slotted length: 5 ft.

11. Backfill material (below filter pack): None ☑ 14 Other ☐

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: [signature] Firm: Badger State Drilling, Inc

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☑

Facility/Project Name	County Name	Well Name
WILLOW CREEK HYD. DERAIL.	DANE	MW-2
Facility License, Permit or Monitoring Number	**County Code**	**Wis. Unique Well Number**	**DNR Well ID Number**
	___	VV800	___

1. Can this well be purged dry? ☐ Yes ☑ No

2. Well development method

surged with bailer and bailed	☐ 41
surged with bailer and pumped	☑ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☐ 10
pumped only	☐ 51
pumped slowly	☐ 50
Other ____	☐

3. Time spent developing well 36 min.

4. Depth of well (from top of well casing) 28.8 ft.

5. Inside diameter of well 2.0 in.

6. Volume of water in filter pack and well casing ___.__ gal.

7. Volume of water removed from well 30.0 gal.

8. Volume of water added (if any) ___.__ gal.

9. Source of water added ____

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 9.6 ft.	9.7 ft.
Date	b. 03/16/2016 (m m d d y y y y)	03/16/2016 (m m d d y y y y)
Time	c. 02:24 ☐ a.m. ☑ p.m.	03:00 ☐ a.m. ☑ p.m.
12. Sediment in well bottom	8.0 inches	0.0 inches
13. Water clarity	Clear ☐ 10 Turbid ☑ 15	Clear ☑ 20 Turbid ☐ 25
(Describe)	LT. BR. TAN. COLOR	
14. Total suspended solids	___.__ mg/l	___.__ mg/l
15. COD	___.__ mg/l	___.__ mg/l

Fill in if drilling fluids were used and well is at solid waste facility:

16. Well developed by: Name (first, last) and Firm
First Name: Last Name:
Firm:

17. Additional comments on development:

Name and Address of Facility Contact/Owner/Responsible Party
First Name: Last Name:
Facility/Firm:
Street:
City/State/Zip:

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature:
Print Name: Mark A. Barwick
Firm: Badger State Drilling, Inc.

NOTE: See instructions for more information including a list of county codes and well type codes.

APPENDIX B

DOCUMENT QUALIFICATIONS

APPENDIX B
DOCUMENT QUALIFICATIONS

I. GENERAL RECOMMENDATIONS/LIMITATIONS

CGC, Inc. should be provided the opportunity for a general review of the final design and specifications to confirm that earthwork and foundation requirements have been properly interpreted in the design and specifications. CGC should be retained to provide soil engineering services during excavation and subgrade preparation. This will allow us to observe that construction proceeds in compliance with the design concepts, specifications and recommendations, and also will allow design changes to be made in the event that subsurface conditions differ from those anticipated prior to the start of construction. CGC does not assume responsibility for compliance with the recommendations in this report unless we are retained to provide construction testing and observation services.

This report has been prepared in accordance with generally accepted soil and foundation engineering practices and no other warranties are expressed or implied. The opinions and recommendations submitted in this report are based on interpretation of the subsurface information revealed by the test borings indicated on the location plan. The report does not reflect potential variations in subsurface conditions between or beyond these borings. Therefore, variations in soil conditions can be expected between the boring locations and fluctuations of groundwater levels may occur with time. The nature and extent of the variations may not become evident until construction.

II. IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL ENGINEERING REPORT

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. *No one except you* should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one - not even you* - should apply the report for any purpose or project except the one originally contemplated.

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A GEOTECHNICAL ENGINEERING REPORT IS BASED ON A UNIQUE SET OF PROJECT-SPECIFIC FACTORS

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, *do not rely on a geotechnical engineering report* that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or project ownership.

As a general rule, , *always* inform your geotechnical engineer of project changes - even minor ones - and request an assessment of their impact. *CGC cannot accept responsibility or liability for problems that occur because our reports do not consider developments of which we were not informed.*

SUBSURFACE CONDITIONS CAN CHANGE

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

MOST GEOTECHNICAL FINDINGS ARE PROFESSIONAL OPINION

Site exploration identifies subsurface conditions only at those points where surface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgement to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ - sometimes significantly - from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A REPORT'S RECOMMENDATIONS ARE NOT FINAL

Do not over-rely on the construction recommendations included in your report. *Those recommendations are not final*, because geotechnical engineers develop them principally from judgement and opinion, geotechnical engineers can finalize their recommendations only by observing actual subsurface conditions revealed during construction. *CGC cannot assume responsibility or liability for the report's recommendations if we do not perform construction observation.*

A GEOTECHNICAL ENGINEERING REPORT IS SUBJECT TO MISINTERPRETATION

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having CGC participate in prebid and preconstruction conferences, and by providing construction observation.

DO NOT REDRAW THE ENGINEER'S LOGS

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

GIVE CONTRACTORS A COMPLETE REPORT AND GUIDANCE

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

READ RESPONSIBILITY PROVISIONS CLOSELY

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce such risks, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineer's responsibilities begin and end, to help others recognize their own responsibilities and risks. Read these provisions closely. Ask questions. Your geotechnical engineer should respond fully and frankly.

GEOENVIRONMENTAL CONCERNS ARE NOT COVERED

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

OBTAIN PROFESSIONAL ASSISTANCE TO DEAL WITH MOLD

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

RELY ON YOUR GEOTECHNICAL ENGINEER FOR ADDITIONAL ASSISTANCE

Membership in ASFE exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with CGC, a member of ASFE, for more information.

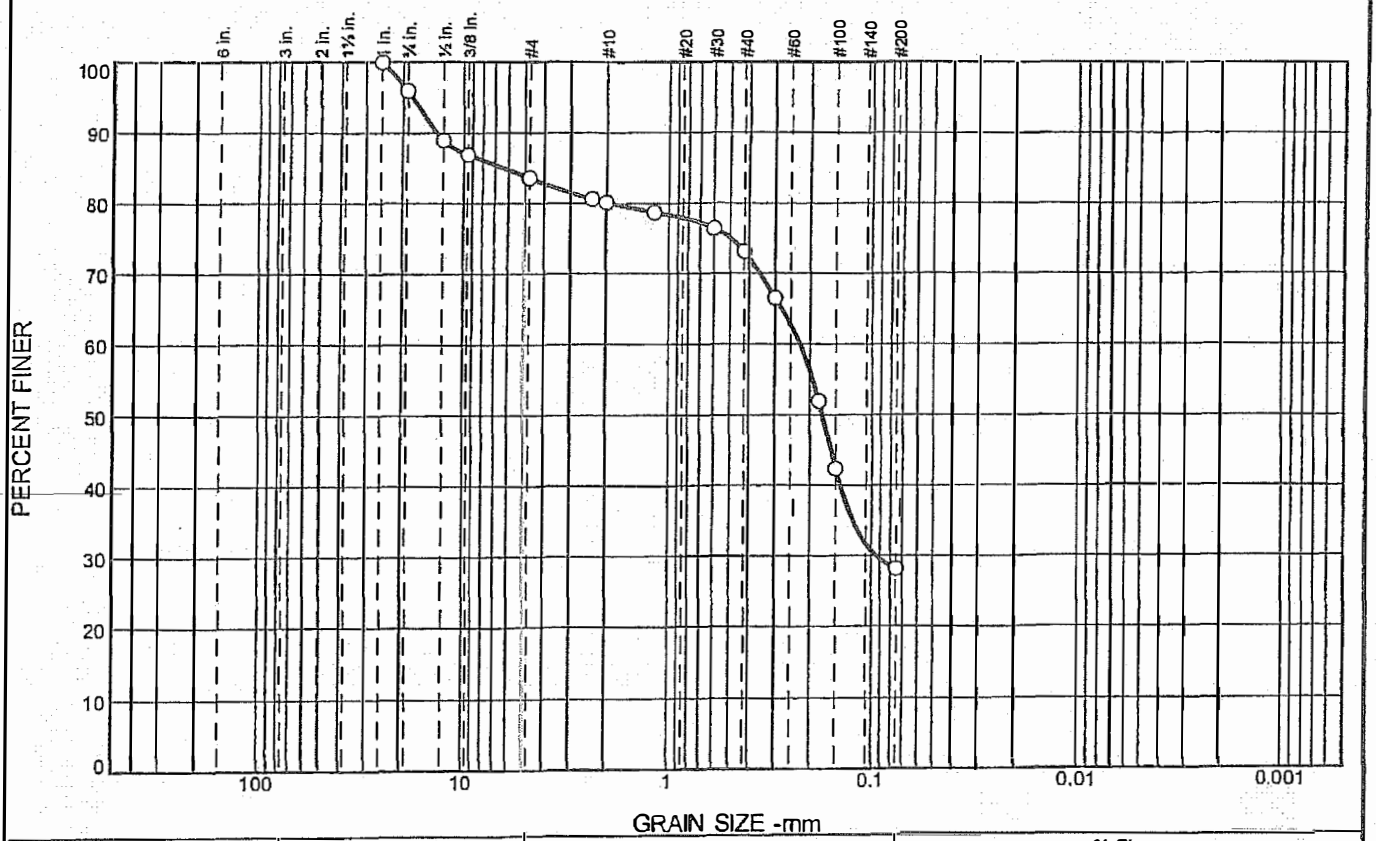
Modified and reprinted with permission from:

ASFE/The Best People on Earth
881 Colesville Road, Suite G 106
Silver Spring, MD 20910

APPENDIX C

GRAIN SIZE ANALYSES AND BAILDOWN TEST REPORTS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	4.0	12.4	3.5	7.0	44.9	28.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
3/4	96.0		
1/2	89.0		
3/8	86.9		
#4	83.6		
#8	80.6		
#10	80.1		
#16	78.7		
#30	76.4		
#40	73.1		
#50	66.5		
#80	51.9		
#100	42.4		
#200	28.2		

* (no specification provided)

Material Description

Brown Fine to Medium Sand, Some Silt and Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 13.6698 D_{85}= 6.3518 D_{60}= 0.2236
D_{50}= 0.1733 D_{30}= 0.0943 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

Sample Number: B1, S5

Date: 3/30/16

CGC, Inc.

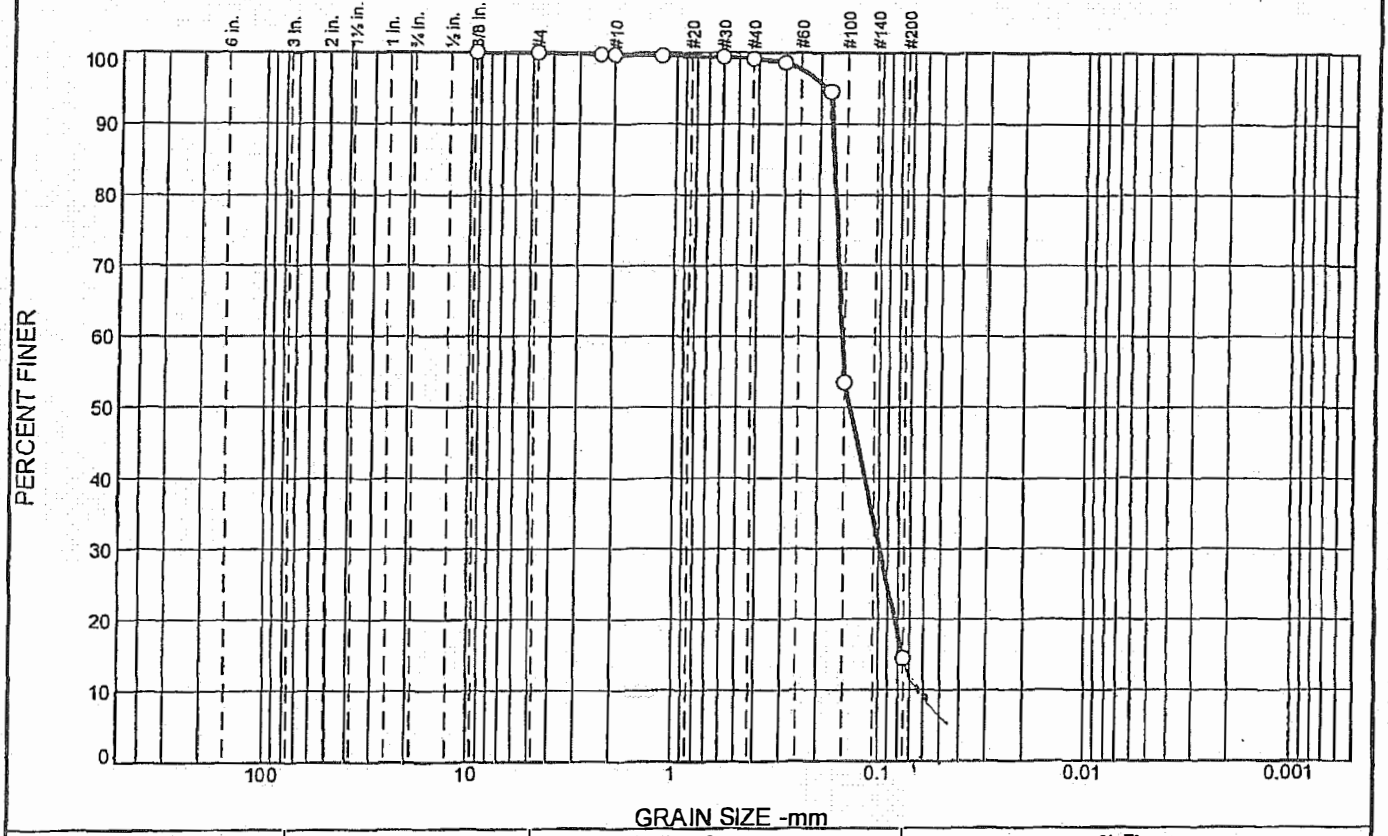
Client: City of Madison
Project: Willow Creek Basin

Project No: C15051-17 **Figure**

Tested By: DRW **Checked By:** WWW

D-82

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	0.5	84.7	14.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100.0		
#4	100.0		
#8	99.7		
#10	99.7		
#16	99.6		
#30	99.4		
#40	99.2		
#50	98.6		
#80	94.6		
#100	53.5		
#200	14.5		

* (no specification provided)

Material Description

Brown Fine Sand, Some Silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.1757 D_{85}= 0.1716 D_{60}= 0.1544
D_{50}= 0.1410 D_{30}= 0.0988 D_{15}= 0.0757
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

Sample Number: B2, S7

Date: 3/30/16

CGC, Inc.

Client: City of Madison
Project: Willow Creek Basin

Project No: C15051-17 Figure

Tested By: DRW **Checked By:** WWW

D-83

CGC, Inc.

Job No. C15051-17
Date: 4/4/2016

BAILDOWN TEST

CGC, Inc., 2921 Perry Street, Madison, WI (608) 288-4100; Fax: (608) 288-7887

PROJECT:	Willow Creek Sediment Basin
LOCATION:	Madison, WI
SAMPLE:	Boring 1W - Screened from 13 to 18 ft
DEPTH (ft):	Sandy Till
SOIL DESCRIPTION:	Fine to Medium Sand, Some Silt & Gravel

INTERVAL	COEFFICIENT OF PERMEABILITY, k (cm/sec)
1	1.7E-04
2	1.3E-04
3	1.4E-04
4	1.3E-04
5	1.3E-04
6	1.1E-04
7	9.0E-05
8	7.7E-05
9	6.8E-05
10	6.1E-05
11	5.5E-05
12	3.7E-05
13	2.8E-05

AVERAGE COEFFICIENT OF PERMEABILITY = 1.3E-04 cm/sec
(Based on run numbers 1 through 6)

FORMULA:

$$k_h = \frac{d^2 \ln\frac{2mL}{D}}{8Lt} \ln\frac{H_1}{H_2}$$

Where D=diameter of sample (cm), d=diameter of standpipe (cm), t=time for water level to rise from initial height (H_1) to final height (H_2), L=sample length (cm), and m is assumed to be 1

REMARKS:

BY: WSW **DATE:** 4/12/16

CGC, Inc.

Job No. C15051-17
Date: 4/4/2016

BAILDOWN TEST

CGC, Inc., 2921 Perry Street, Madison, WI (608) 288-4100; Fax: (608) 288-7887

PROJECT:	Willow Creek Sediment Basin
LOCATION:	Madison, WI
SAMPLE:	Boring 2W - Screened from 21 to 26 ft
DEPTH (ft):	Sandstone Bedrock
SOIL DESCRIPTION:	Weathered Fine-Grained Sandstone

INTERVAL	COEFFICIENT OF PERMEABILITY, k (cm/sec)
1	4.09E-04
2	2.60E-04
3	1.43E-04
4	5.04E-05
5	7.56E-05
6	6.15E-05
7	5.13E-05
8	4.41E-05
9	3.86E-05
10	3.44E-05
11	3.09E-05
12	2.07E-05

AVERAGE COEFFICIENT OF PERMEABILITY = 2.7E-04 cm/sec
(Based on run numbers 1 through 3)

FORMULA: $$k_{lt} = \frac{d^2 \ln \frac{2mL}{D}}{8Lt} \ln \frac{H_1}{H_2}$$

Where D=diameter of sample (cm), d=diameter of standpipe (cm), t=time for water level to rise from initial height (H_1) to final height (H_2), L=sample length (cm), and m is assumed to be 1

REMARKS:

BY: MWW DATE: 4/12/16

Department of Public Works
Engineering Division
Robert F. Phillips, P.E., City Engineer

City-County Building, Room 115
210 Martin Luther King, Jr. Boulevard
Madison, Wisconsin 53703
Phone: (608) 266-4751
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engineering@cityofmadison.com
www.cityofmadison.com/engineering

Assistant City Engineer
Michael R. Dailey, P.E.

Principal Engineer 2
Gregory T. Fries, P.E.
Christopher J. Petykowski, P.E.

Principal Engineer 1
Christina M. Bachmann, P.E.
Eric L. Dundee, P.E.
John S. Fahrney, P.E.

Facilities & Sustainability
Jeanne E. Hoffman, Manager

Operations Manager
Kathleen M. Cryan

Mapping Section Manager
Eric T. Pederson, P.S.

Financial Manager
Steven B. Danner-Rivers

August 1, 2016

NOTICE OF ADDENDUM
ADDENDUM NO. 1
CONTRACT NO. 7330

WILLOW CREEK STORMWATER TREATMENT 2016

Revise and amend the contract document(s) for the above project as stated in this addendum, otherwise, the original document shall remain in effect.

SPECIAL PROVISIONS:

MODIFY SECTION 107.7 MAINTENANCE OF TRAFFIC

REPLACE paragraph #3 with:

The contractor shall maintain the main E/W bike path at the southern limits of the project open at all times. The bike path running parallel to the project on the eastside of the channel may be closed to traffic for the duration of the project unless winter shutdown occurs in which case it shall be opened. Primary access to the site shall be from Linden Drive and Herrick Drive however staging may occur on the bike path east of the channel. Additionally, all traffic control plans and access shall be coordinated with Rob Kennedy of the University of Wisconsin @ 608-263-1034.

REPLACE - SECTION 109.2 PROSECUTION OF THE WORK with:

The Contractor shall begin work on or after **SEPTEMBER 19, 2016**. The Contractor shall complete all work by **JUNE 15, 2017**. The Contractor may choose to work on concrete through the winter with appropriate cold weather protection in place. All work cost needed for this effort shall be at the Contractors expense. If the Contractor chooses to continue concrete work through the winter, a winter shut down plan shall still be required to address erosion issues and a spring mobilization will still be paid under BID ITEM 90050.

Work shall begin only after the start work letter is received. If it is desirable to begin work before the above-mentioned date, the Contractor shall establish a mutually acceptable date with the City Engineer (contact the Construction Engineer at 266-4094).

MODIFY BID ITEM 90031 – DREDGING

REPLACE the DESCRIPTION with:

Work under this item shall include all work, transport, and materials/equipment necessary to dredge sediments from Willow Creek, in the locations shown on the plan set, transport and placement of the materials at the Madison Metropolitan Sewerage District Drying (MMSD) Beds.

The Contractor shall submit a dredging and sediment transport plan prior to beginning the work to the Construction Engineer. Mechanical dredging, including the use of a backhoe or clamshell, will be considered acceptable methodology. Hydraulic dredging shall not be approved. The intent of the dredging is to remove sediment accumulated from storm water runoff and sloughing of the stream bank. The Contractor shall remove sediment to a minimum elevation of 2.33 feet below proposed grades as shown on Sheets U-3 or U-6. Any over excavation required to create a stable base for the underdrain system (Bid Item 90040) shall be incidental to this item.

The Contractor shall haul to the MMSD drying beds using water-tight trucks. The Contractor shall contact Paul Nehm (MMSD) at 608-222-1201 ext 252 or pauln@madsewer.org. Over excavated materials (noted above) shall be disposed of following these procedures, but shall be incidental to this item.

If trash is encountered in the dredging process, it shall be segregated and properly disposed of by the Contractor.

REMOVE

PAGE D-37, Section 2.05 C.

PLAN SET:

ADD Sheets U-2 through U-12

Please acknowledge this addendum on page E1 of the contract documents and/or in Section E: Bidder's Acknowledgement on Bid Express.

Electronic version of these documents can be found on the Bid Express web site at:

http://www.bidexpress.com

If you are unable to download plan revisions associated with the addendum, please contact the Engineering office at 608-266-4751 receive the material by another route.

Robert F. Phillips, P.E., City Engineer

RFP:jmw

Department of Public Works
Engineering Division
Robert F. Phillips, P.E., City Engineer

City-County Building, Room 115
210 Martin Luther King, Jr. Boulevard
Madison, Wisconsin 53703
Phone: (608) 266-4751
Fax: (608) 264-9275
engineering@cityofmadison.com
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Facilities & Sustainability
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Operations Manager
Kathleen M. Cryan

Mapping Section Manager
Eric T. Pederson, P.S.

Financial Manager
Steven B. Danner-Rivers

August 3, 2016

NOTICE OF ADDENDUM
ADDENDUM NO. 2
CONTRACT NO. 7330

WILLOW CREEK STORMWATER TREATMENT 2016

Revise and amend the contract document(s) for the above project as stated in this addendum, otherwise, the original document shall remain in effect.

MODIFY BID ITEM 90032 – PRECAST 72" x 120" REINFORCED CONCRETE BOX CULVERT

PARAGRAPH FOUR (4) REPLACE U12 with U13 & U14:

PLAN SET:

ADD Sheets U-13 and U-14

Please acknowledge this addendum on page E1 of the contract documents and/or in Section E: Bidder's Acknowledgement on Bid Express.

Electronic version of these documents can be found on the Bid Express web site at:

http://www.bidexpress.com

If you are unable to download plan revisions associated with the addendum, please contact the Engineering office at 608-266-4751 receive the material by another route.

Robert F. Phillips, P.E., City Engineer

RFP:jmw

SECTION E: BIDDERS ACKNOWLEDGEMENT

CONTRACT TITLE WILLOW CREEK STORMWATER TREATMENT 2016

CONTRACT NO. 7330

Bidder must state a Unit Price and Total Bid for each item. The Total Bid for each item must be the product of quantity, by Unit Price. The Grand Total must be the sum of the Total Bids for the various items. In case of multiplication errors or addition errors, the Grand Total with corrected multiplication and/or addition shall determine the Grand Total bid for each contract. The Unit Price and Total Bid must be entered numerically in the spaces provided. All words and numbers shall be written in ink.

1. The undersigned having familiarized himself/herself with the Contract documents, including Advertisement for Bids, Instructions to Bidders, Form of Proposal, City of Madison Standard Specifications for Public Works Construction - 2016 Edition thereto, Form of Agreement, Form of Bond, and Addenda issued and attached to the plans and specifications on file in the office of the City Engineer, hereby proposes to provide and furnish all the labor, materials, tools, and expendable equipment necessary to perform and complete in a workmanlike manner the specified construction on this project for the City of Madison; all in accordance with the plans and specifications as prepared by the City Engineer, including Addenda to the Contract Nos. 1 through 2 issued thereto, at the prices for said work as contained in this proposal. (Electronic bids submittals shall acknowledge addendum under Section E and shall not acknowledge here)
2. If awarded the Contract, we will initiate action within seven (7) days after notification or in accordance with the date specified in the contract to begin work and will proceed with diligence to bring the project to full completion within the number of work days allowed in the Contract or by the calendar date stated in the Contract.
3. The undersigned Bidder or Contractor certifies that he/she is not a party to any contract, combination in form of trust or otherwise, or conspiracy in restraint of trade or commerce or any other violation of the anti-trust laws of the State of Wisconsin or of the United States, with respect to this bid or contract or otherwise.
4. I hereby certify that I have met the Bid Bond Requirements as specified in Section 102.5. *(IF BID BOND IS USED, IT SHALL BE SUBMITTED ON THE FORMS PROVIDED BY THE CITY. FAILURE TO DO SO MAY RESULT IN REJECTION OF THE BID).*
5. I hereby certify that all statements herein are made on behalf of R.G. Huson Co, Inc. (name of corporation, partnership, or person submitting bid) a corporation organized and existing under the laws of the State of Wisconsin a partnership consisting of _____; an individual trading as _____; of the City of _____ State of _____; that I have examined and carefully prepared this Proposal, from the plans and specifications and have checked the same in detail before submitting this Proposal; ~~that I have fully authority to make such statements~~ and submit this Proposal in (its, their) behalf; ~~and that the said statements are true and correct~~.

R.G. HUSON CO., INC. CORPORATE SEAL 1975 WISCONSIN

SIGNATURE

President

TITLE, IF ANY

Sworn and subscribed to before me this 12 day of August, 2016.

(Notary Public or other officer authorized to administer oaths)

My Commission Expires 1-10-20

Bidders shall not add any conditions or qualifying statements to this Proposal.

DENNIS RICHARDSON
Notary Public
State of Wisconsin

Contract 7330 – R. G. Huston Co., Inc.

Section F: Disclosure of Ownership and BVC

This section is a required document for the bid to be considered complete. There are two methods for completing the Disclosure of Ownership and BVC form. Method one: The form can be filled out online and submitted to this site to be included with your electronic bid. Method two: The form can be downloaded from the site and submitted by hand to the City of Madison.

Method of Submittal for Disclosure of Ownership and BVC (click in box below to choose) *
I will submit Bid Express fillable online form (Disclosure of Ownership and BVC).

Notice required under Section 15.04(1)(m), Wisconsin Statutes. The statutory authority for the use of this form is prescribed in Sections 66.0903(12)(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). Personal information you provide may be used for secondary purposes.

(1) On the date a contractor submits a bid to or completes negotiations with a state agency or local governmental unit, on a project subject to Section 66.0903 or 103.49, Wisconsin Statutes, the contractor shall disclose to such state agency or local governmental unit 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), 103.49(2) and 103.50(2), Wisconsin Statues.

(3) This form must ONLY be filed, with the state agency or local governmental unit 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.

2. Or 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

☑ Not Applicable

Best Value Contracting

1. The Contractor shall indicate the non-apprenticeable trades used on this contract.

2. Madison General Ordinance (M.G.O.), 33.07(7), does provide for some exemptions from the active apprentice requirement. Apprenticeable trades are those trades considered apprenticeable by the State of Wisconsin. Please check applicable box if you are seeking an exemption.

☐ Contractor has a total skilled workforce of four or less individuals in all apprenticeable trades combined.

☐ No available trade training program; The Contractor has been rejected by the only available trade training program, or there is no trade training program within 90 miles.

☐ Contractor is not using an apprentice due to having a journey worker on layoff status, provided the journey worker was employed by the contractor in the past six months.

☐ First time contractor on City of Madison Public Works contract requests a onetime exemption but intends to comply on all future contracts and is taking steps typical of a "good faith" effort.

☐ Contractor has been in business less than one year.

☐ Contractor doesn't have enough journeyman trade workers to qualify for a trade training program in that respective trade.

☐ An exemption is granted in accordance with a time period of a "Documented Depression" as defined by the State of Wisconsin.

3. The Contractor shall indicate on the following section which apprenticeable trades are to be used on this contract. Compliance with active apprenticeship, to the extent required by M.G.O. 33.07(7), shall be satisfied by documentation from an applicable trade training body; an apprenticeship contract with the Wisconsin Department of Workforce Development or a similar agency in another state; or the U.S Department of Labor. This documentation is required prior to the Contractor beginning work on the project site.

☐ The Contractor has reviewed the list and shall not use any apprenticeable trades on this project.

LIST APPRENTICABLE TRADES (check all that apply to your work to be performed on this contract)

- ☐ BRICKLAYER
- ☐ CARPENTER
- ☐ CEMENT MASON / CONCRETE FINISHER
- ☐ CEMENT MASON (HEAVY HIGHWAY)
- ☑ CONSTRUCTION CRAFT LABORER
- ☐ DATA COMMUNICATION INSTALLER
- ☐ ELECTRICIAN
- ☐ ENVIRONMENTAL SYSTEMS TECHNICIAN / HVAC SERVICE TECH/HVAC INSTALL / SERVICE
- ☐ GLAZIER
- ☑ HEAVY EQUIPMENT OPERATOR / OPERATING ENGINEER
- ☐ INSULATION WORKER (HEAT and FROST)
- ☐ IRON WORKER
- ☐ IRON WORKER (ASSEMBLER, METAL BLDGS)
- ☐ PAINTER and DECORATOR
- ☐ PLASTERER
- ☐ PLUMBER
- ☐ RESIDENTIAL ELECTRICIAN
- ☐ ROOFER and WATER PROOFER
- ☐ SHEET METAL WORKER
- ☐ SPRINKLER FITTER
- ☐ STEAMFITTER
- ☐ STEAMFITTER (REFRIGERATION)
- ☐ STEAMFITTER (SERVICE)
- ☐ TAPER and FINISHER
- ☐ TELECOMMUNICATIONS (VOICE, DATA and VIDEO) INSTALLER-TECHNICIAN
- ☐ TILE SETTER

WILLOW CREEK STORMWATER TREATMENT 2016

CONTRACT 7330

Small Business Enterprise Compliance Report

Cover Sheet

This information **MUST** be submitted in a separate sealed envelope marked **"ENVELOPE NO. 2 - SBE COMPLIANCE REPORT".**

Prime Bidder Information:

Company: R.G. Huston Company, Inc.

Address: 2561 Coffeytown Road
Cottage Grove, WI 53527

Telephone Number: (608) 255-9223 Fax Number: (608) 839-5936

Contact Person/Title: Brad Huston, President

Prime Bidder Certification:

I, Brad Huston, President of R.G. Huston Company, Inc. certify that the information contained in this SBE Compliance Report is true and correct to the best of my knowledge and belief.

Witness Signature

Bidder's Signature

8/12/16
Date

R.G. HUSTON CO., INC. CORPORATE SEAL 1975 WISCONSIN

WILLOW CREEK STORMWATER TREATMENT 2016

CONTRACT 7330

Small Business Enterprise Compliance Report

Summary Sheet

This information **MUST** be submitted in a separate sealed envelope marked **"ENVELOPE NO. 2 - SBE COMPLIANCE REPORT".**

SBE SUBCONTRACTORS WHO ARE NOT SUPPLIERS

Name(S) of SBEs Utilized	Type of Work	% of Total Bid Amount
BULLET TRANSIT	TRUCKING	1%
JR CONSTRUCTION	LANDSCAPING	1.8%

Subtotal SBE who are not suppliers: 2.8 %

SBE SUBCONTRACTORS WHO ARE SUPPLIERS

Name(S) of SBEs Utilized	Type of Work	% of Total Bid Amount

Subtotal SBE who are suppliers: _____ % X 0.6 = _____ %(discounted to 60%)

Total Percentage of SBE Utilization: 2.8 %

WILLOW CREEK STORMWATER TREATMENT 2016

CONTRACT NO. 7330
DATE: 8/12/16

R.G. Huston Co., Inc.

Item	Quantity	Price	Extension
Section B: Proposal Page			
10702.0 - TRAFFIC CONTROL FOR STORM SEWER INSTALLATION - LUMP SUM	1.00	$3,000.00	$3,000.00
10912.0 - MOBILIZATION FOR STORM SEWER INSTALLATION - LUMP SUM	1.00	$105,000.00	$105,000.00
20101.0 - EXCAVATION CUT - CY	480.00	$30.00	$14,400.00
20109.0 - FINISH GRADING - LUMP SUM	1.00	$3,660.00	$3,660.00
20140.0 - GEOTEXTILE FABRIC TYPE SAS NON WOVEN (UNDISTRIBUTED) - SY	361.00	$4.50	$1,624.50
20217.0 - CLEAR STONE - TON	370.00	$18.50	$6,845.00
20221.0 - TOPSOIL (UNDISTRIBUTED) - SY	327.00	$8.00	$2,616.00
20233.0 - RIPRAP FILTER FABRIC, TYPE HR - SY	990.00	$5.00	$4,950.00
20302.0 - SAWCUT CONCRETE FULL DEPTH - LF	30.00	$20.00	$600.00
20303.0 - SAWCUT BITUMINOUS PAVEMENT - LF	110.00	$2.00	$220.00
20321.0 - REMOVE CONCRETE PAVEMENT - SY	20.00	$30.00	$600.00
20322.0 - REMOVE CONCRETE CURB & GUTTER - LF	60.00	$10.00	$600.00
20336.0 - PIPE PLUG - EACH	1.00	$1,000.00	$1,000.00
20701.0 - TERRACE SEEDING (UNDISTRIBUTED) - SY	327.00	$6.00	$1,962.00
21002.0 - EROSION CONTROL INSPECTION - EACH	1.00	$500.00	$500.00
21011.0 - CONSTRUCTION ENTRANCE - EACH	1.00	$520.00	$520.00
21018.0 - SILT SOCK (8 INCH) - PROVIDE, INSTALL & MAINTAIN - LF	250.00	$8.00	$2,000.00
21019.0 - SILT SOCK (8 INCH) - REMOVE & RESTORE - LF	250.00	$2.00	$500.00
21056.0 - INLET PROTECTION, TYPE D HYBRID - PROVIDE & INSTALL - EACH	2.00	$200.00	$400.00
21057.0 - INLET PROTECTION, TYPE D HYBRID - MAINTAIN - EACH	2.00	$100.00	$200.00
21058.0 - INLET PROTECTION, TYPE D HYBRID - REMOVE - EACH	2.00	$50.00	$100.00
21063.0 - EROSION MATTING, CLASS II, TYPE C - ORGANIC (UNDISTRIBUTED) - SY	327.00	$5.00	$1,635.00
30201.0 - TYPE "A" CONCRETE CURB & GUTTER - LF	60.00	$25.00	$1,500.00
40102.0 - CRUSHED AGGREGATE BASE COURSE, GRADATION NO. 2 OR NO. 3 - TON	50.00	$22.50	$1,125.00
40201.0 - HMA PAVEMENT TYPE E-0.3 - TON	20.00	$150.00	$3,000.00
40321.0 - UNDERCUT (UNDISTRIBUTED) - CY	250.00	$56.25	$14,062.50
50202.0 - TYPE II DEWATERING - LUMP SUM	1.00	$24,000.00	$24,000.00
50211.0 - SELECT BACKFILL FOR STORM SEWER - TF	85.00	$0.10	$8.50
50226.0 - UTILITY TRENCH PATCH TYPE III - TF	85.00	$167.00	$14,195.00
50409.0 - 36 INCH TYPE I RCP STORM SEWER PIPE - LF	12.00	$137.50	$1,650.00
50437.0 - 6 INCH TYPE III STORM SEWER PIPE - LF	13.00	$81.50	$1,059.50
50440.0 - 12 INCH TYPE III STORM SEWER PIPE - LF	18.00	$102.50	$1,845.00
50499.0 - CONCRETE COLLAR - EACH	3.00	$1,920.00	$5,760.00
50724.0 - 4'X4' STORM SAS - EACH	1.00	$7,660.00	$7,660.00
50792.0 - STORM SEWER TAP - EACH	2.00	$1,350.00	$2,700.00
90030.0 - REINFORCED CONCRETE CHANNEL - LUMP SUM	1.00	$410,000.00	$410,000.00
90031.0 - DREDGING - CY	1500.00	$42.10	$63,150.00
90032.0 - PRECAST 72 INCH X 120 INCH REINFORCED CONCRETE BOX CULVERT - LF	85.00	$1,600.00	$136,000.00
90033.0 - BULKHEAD (72 INCH X 120 INCH REINFORCED CONCRETE BOX CULVERT) - EACH	1.00	$8,800.00	$8,800.00
90034.0 - LAKE & STORM CONTROL PLAN & IMPLEMENTATION - LUMP SUM	1.00	$175,000.00	$175,000.00
90035.0 - ENCAPSULATED SOIL LIFTS - SF	1800.00	$50.75	$91,350.00
90036.0 - LIVE-STAKING - EACH	160.00	$16.30	$2,608.00
90037.0 - CONCRETE WASTE MANAGEMENT - LUMP SUM	1.00	$500.00	$500.00
90038.0 - REMOVE, SALVAGE & REPLACE RIPRAP - SY	56.00	$87.00	$4,872.00
90039.0 - TEMPORARY SHORING - SF	700.00	$51.00	$35,700.00
90040.0 - UNDERDRAIN SYSTEM - LUMP SUM	1.00	$14,750.00	$14,750.00
90041.0 - CONCRETE FLUME - EACH	1.00	$815.00	$815.00
90042.0 - REMOVE & REPLACE RAILING - LF	50.00	$250.00	$12,500.00
90043.0 - CONSTRUCTION FENCING - LF	90.00	$5.00	$450.00
90044.0 - EXPOSED SLOPE RESTORATION - SY	272.00	$32.50	$8,840.00
90045.0 - TREE PLANTING - EACH	7.00	$540.00	$3,780.00

WILLOW CREEK STORMWATER TREATMENT 2016

CONTRACT NO. 7330
DATE: 8/12/16

R.G. Huston Co., Inc.

Item	Quantity	Price	Extension
90046.0 - SHRUB PLANTING - EACH	69.00	$125.00	$8,625.00
90047.0 - TREE AND SHRUBS MAINTENANCE - LUMP SUM	1.00	$2,000.00	$2,000.00
90049.0 - FALL MOBILIZATION - LUMP SUM	1.00	$4,700.00	$4,700.00
90050.0 - SPRING MOBILIZATION - LUMP SUM	1.00	$1,550.00	$1,550.00
90051.0 - SLOPE RESTORATION AND LIVE STAKE MAINTENANCE - LUMP SUM	1.00	$9,160.00	$9,160.00
90052.0 - TEMPORARY SLOPE STABILIZATION - LUMP SUM	1.00	$4,160.00	$4,160.00
57 Items	Totals		$1,230,808.00

Department of Public Works
City Engineering Division

608 266 4751

Robert F. Phillips, P.E.
City Engineer

City-County Building, Room 115
210 Martin Luther King, Jr. Boulevard
Madison, Wisconsin 53703
608 264 9275 FAX
1 866 704 2315 Textnet

Principal Engineers
Michael R. Dailey, P.E.
Christina M. Bachmann, P.E.
John S. Fahrney, P.E.
Gregory T. Fries, P.E.

Facilities & Sustainability
Jeanne E. Hoffman, Manager
James C. Whitney, A.I.A.

Operations Manager
Kathleen M. Cryan

GIS Manager
David A. Davis, R.L.S.

Financial Officer
Steven B. Danner-Rivers

Hydrogeologist
Brynn Bemis

BIENNIAL BID BOND

R.G. Huston Co., Inc.
(a corporation of the State of Wisconsin)
(~~individually~~ ~~(partnership)~~), (hereinafter referred to as the "Principal") and
BERKLEY INSURANCE COMPANY
a corporation of the State of Delaware (hereinafter referred to as the "Surety") and licensed to do business in the State of Wisconsin, are held and firmly bound unto the City of Madison, Wisconsin (hereinafter referred to as the "City"), in the sum equal to the individual proposal guaranty amounts of the total bid or bids of the Principal herein accepted by the City, for the payment of which the Principal and the Surety hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

The condition of this obligation is that the Principal has submitted to the City certain bids for projects from the time period of February 1, 2016 through February 1, 2018.

If the Principal is awarded the contract(s) by the City and, within the time and manner required by law after the prescribed forms are presented for its signature, the Principal enters into (a) written contract(s) in accordance with the bid(s), and files with the City its bond(s) guaranteeing faithful performance and payment for all labor and materials, as required by law, or if the City rejects all bids for the work described, then this obligation shall be null and void; otherwise, it shall remain in full force and effect.

In the event the Principal shall fail to execute and deliver the contract(s) or the performance and payment bond(s), all within the time specified or any extension thereof, the Principal and Surety agree jointly and severally to pay to the City within ten (10) calendar days of written demand a total equal to the sum of the individual proposal guaranty amounts of the total bid(s) as liquidated damages.

The Surety, for value received, hereby agrees that the obligations of it and its bond shall be in no way impaired or affected by any extension of time within which the City may accept a bid, and the Surety does hereby waive notice of any such extension.

This bond may be terminated by the Surety upon giving thirty (30) days written notice to the City of its intent to terminate this bond and to be released and discharged therefrom, but such termination shall not operate to relieve or discharge the Surety from any liability already accrued or which shall accrue before the expiration of such thirty (30) day period.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, on the day and year set forth below.

PRINCIPAL

R.G. HUSTON CO., INC. — 12 / 15 / 2016

COMPANY NAME — AFFIX SEAL — DATE

By: _____
SIGNATURE AND TITLE
Brad Huston - President

R.G. HUSTON CO., INC. CORPORATE SEAL 1975 WISCONSIN

SURETY

BERKLEY INSURANCE COMPANY — December 4, 2015

COMPANY NAME — AFFIX SEAL — DATE

By: _____
SIGNATURE AND TITLE
Joseph L. Vigna, Attorney-In-Fact

This certifies that I have been duly licensed as an agent for the Surety in Wisconsin under License No. 429050 for the year 2015 / 2016, and appointed as attorney in fact with authority to execute this bid bond, which power of attorney has not been revoked.

December 4, 2015
DATE

_____
AGENT Joseph L. Vigna

17035 West Wisconsin Avenue - Suite 135
ADDRESS

Brookfield, Wisconsin 53005
CITY, STATE AND ZIP CODE

262-792-2210
TELEPHONE NUMBER

Note to Surety and Principal: Any bid submitted which this bond guarantees may be rejected if the Power of Attorney form showing that the Agent of Surety is currently authorized to execute bonds on behalf of Surety is not attached to this bond.

No. BI- 145

POWER OF ATTORNEY
BERKLEY INSURANCE COMPANY
WILMINGTON, DELAWARE

NOTICE: The warning found elsewhere in this Power of Attorney affects the validity thereof. Please review carefully.

KNOW ALL MEN BY THESE PRESENTS, that BERKLEY INSURANCE COMPANY (the "Company"), a corporation duly organized and existing under the laws of the State of Delaware, having its principal office in Greenwich, CT, has made, constituted and appointed, and does by these presents make, constitute and appoint: ***Joseph L. Vigna, Dennis M. Barton or Elizabeth M. Fedyn of Arthur J. Gallagher & Company of Wisconsin, Inc. of Brookfield, WI*** its true and lawful Attorney-in-Fact, to sign its name as surety only as delineated below and to execute, seal, acknowledge and deliver any and all bonds and undertakings, with the exception of Financial Guaranty Insurance, providing that no single obligation shall exceed **Fifty Million and 00/100 U.S. Dollars (U.S.$50,000,000.00),** to the same extent as if such bonds had been duly executed and acknowledged by the regularly elected officers of the Company at its principal office in their own proper persons.

This Power of Attorney shall be construed and enforced in accordance with, and governed by, the laws of the State of Delaware, without giving effect to the principles of conflicts of laws thereof. This Power of Attorney is granted pursuant to the following resolutions which were duly and validly adopted at a meeting of the Board of Directors of the Company held on January 25, 2010:

RESOLVED, that, with respect to the Surety business written by Berkley Surety Group, the Chairman of the Board, Chief Executive Officer, President or any Vice President of the Company, in conjunction with the Secretary or any Assistant Secretary are hereby authorized to execute powers of attorney authorizing and qualifying the attorney-in-fact named therein to execute bonds, undertakings, recognizances, or other suretyship obligations on behalf of the Company, and to affix the corporate seal of the Company to powers of attorney executed pursuant hereto; and said officers may remove any such attorney-in-fact and revoke any power of attorney previously granted; and further

RESOLVED, that such power of attorney limits the acts of those named therein to the bonds, undertakings, recognizances, or other suretyship obligations specifically named therein, and they have no authority to bind the Company except in the manner and to the extent therein stated; and further

RESOLVED, that such power of attorney revokes all previous powers issued on behalf of the attorney-in-fact named; and further

RESOLVED, that the signature of any authorized officer and the seal of the Company may be affixed by facsimile to any power of attorney or certification thereof authorizing the execution and delivery of any bond, undertaking, recognizance, or other suretyship obligation of the Company; and such signature and seal when so used shall have the same force and effect as though manually affixed. The Company may continue to use for the purposes herein stated the facsimile signature of any person or persons who shall have been such officer or officers of the Company, notwithstanding the fact that they may have ceased to be such at the time when such instruments shall be issued.

IN WITNESS WHEREOF, the Company has caused these presents to be signed and attested by its appropriate officers and its corporate seal hereunto affixed this 10 day of May, 2013.

Attest: Berkley Insurance Company

(Seal)

By _____ By _____

Ira S. Lederman
Senior Vice President & Secretary

Jeffrey M. Hafter
Senior Vice President

WARNING: THIS POWER INVALID IF NOT PRINTED ON BLUE "BERKLEY" SECURITY PAPER.

STATE OF CONNECTICUT)
) ss:
COUNTY OF FAIRFIELD)

Sworn to before me, a Notary Public in the State of Connecticut, this 10 day of May, 2013, by Ira S. Lederman and Jeffrey M. Hafter who are sworn to me to be the Senior Vice President and Secretary, and the Senior Vice President, respectively, of Berkley Insurance Company.

_____
Notary Public, State of Connecticut

KATHLEEN COREY
NOTARY PUBLIC
CONNECTICUT
MY COMMISSION EXPIRES OCTOBER 31, 2017

CERTIFICATE

I, the undersigned, Assistant Secretary of BERKLEY INSURANCE COMPANY, DO HEREBY CERTIFY that the foregoing is a true, correct and complete copy of the original Power of Attorney; that said Power of Attorney has not been revoked or rescinded and that the authority of the Attorney-in-Fact set forth therein, who executed the bond or undertaking to which this Power of Attorney is attached, is in full force and effect as of this date.

Given under my hand and seal of the Company, this 4th day of December, 2015.

(Seal)

_____
Andrew M. Tuma

Instructions for Inquiries and Notices Under the Bond Attached to This Power

Berkley Surety Group is the affiliated underwriting manager for the surety business of: Acadia Insurance Company, Berkley Insurance Company, Berkley Regional Insurance Company, Carolina Casualty Insurance Company, Union Standard Insurance Company, Continental Western Insurance Company, and Union Insurance Company.

To verify the authenticity of the bond, please call (866) 768-3534 or email BSGInquiry@berkleysurety.com

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Any written notices, inquiries, claims or demands to the surety on the bond to which this Rider is attached should be directed to:

Berkley Surety Group
412 Mount Kemble Avenue
Suite 310N
Morristown, NJ 07960
Attention: Surety Claims Department

Or

email BSGClaim@berkleysurety.com

Please include with all notices the bond number and the name of the principal on the bond. Where a claim is being asserted, please set forth generally the basis of the claim. In the case of a payment or performance bond, please identify the project to which the bond pertains.

SECTION H: AGREEMENT

THIS AGREEMENT made this 21 day of September in the year Two Thousand and Sixteen between **R. G. HUSTON CO., INC.** hereinafter called the Contractor, and the City of Madison, Wisconsin, hereinafter called the City.

WHEREAS, the Common Council of the said City of Madison under the provisions of a resolution adopted **SEPTEMBER 20, 2016**, and by virtue of authority vested in the said Council, has awarded to the Contractor the work of performing certain construction.

NOW, THEREFORE, the Contractor and the City, for the consideration hereinafter named, agree as follows:

1. **Scope of Work.** The Contractor shall, perform the construction, execution and completion of the following listed complete work or improvement in full compliance with the Plans, Specifications, Standard Specifications, Supplemental Specifications, Special Provisions and contract; perform all items of work covered or stipulated in the proposal; perform all altered or extra work; and shall furnish, unless otherwise provided in the contract, all materials, implements, machinery, equipment, tools, supplies, transportation, and labor necessary to the prosecution and completion of the work or improvements:

WILLOW CREEK STORMWATER TREATMENT 2016
CONTRACT NO. 7330

2. **Completion Date/Contract Time.** Construction work must begin within seven (7) calendar days after the date appearing on mailed written notice to do so shall have been sent to the Contractor and shall be carried on at a rate so as to secure full completion SEE SPECIAL PROVISIONS, the rate of progress and the time of completion being essential conditions of this Agreement.

3. **Contract Price.** The City shall pay to the Contractor at the times, in the manner and on the conditions set forth in said specifications, the sum of **ONE MILLION TWO HUNDRED THIRTY THOUSAND EIGHT HUNDRED EIGHT** ($1,230,808.00) Dollars being the amount bid by such Contractor and which was awarded to him/her as provided by law.

4. **Wage Rates for Employees of Public Works Contractors**

General and Authorization. The Contractor shall compensate its employees at the prevailing wage rate in accordance with section 66.0903, Wis. Stats., DWD 290 of the Wisconsin Administrative Code and as hereinafter provided unless otherwise noted in Section D: Special Provisions, Subsection 102.10 – Minimum Rate of Wage Scale.

"Public Works" shall include building or work involving the erection, construction, remodeling, repairing or demolition of buildings, parking lots, highways, streets, bridges, sidewalks, street lighting, traffic signals, sanitary sewers, water mains and appurtenances, storm sewers, and the grading and landscaping of public lands.

"Building or work" includes construction activity as distinguished from manufacturing, furnishing of materials, or servicing and maintenance work, except for the delivery of mineral aggregate such as sand, gravel, bituminous asphaltic concrete or stone which is incorporated into the work under contract with the City by depositing the material directly in final place from transporting vehicle.

"Erection, construction, remodeling, repairing" means all types of work done on a particular building or work at the site thereof in the construction or development of the project, including without limitation, erecting, construction, remodeling, repairing, altering, painting, and decorating, the transporting of materials and supplies to or from the building or work done by the employees of the Contractor, Subcontractor, or Agent thereof, and the manufacturing or furnishing of

materials, articles, supplies or equipment on the site of the building or work, by persons employed by the Contractor, Subcontractor, or Agent thereof.

"Employees working on the project" means laborers, workers, and mechanics employed directly upon the site of work.

"Laborers, Workers, and Mechanics" include pre-apprentices, helpers, trainees, learners and properly registered and indentured apprentices but exclude clerical, supervisory, and other personnel not performing manual labor.

Establishment of Wage Rates. The Department of Public Works shall periodically obtain a current schedule of prevailing wage rates from DWD. The schedule shall be used to establish the City of Madison Prevailing Wage Rate Schedule for Public Works Construction (prevailing wage rate). The Department of Public Works may include known increases to the prevailing wage rate which can be documented and are to occur on a future specific date. The prevailing wage rate shall be included in public works contracts subsequently negotiated or solicited by the City. Except for known increases contained within the schedule, the prevailing wage rate shall not change during the contract. The approved wage rate is attached hereto.

Workforce Profile. The Contractor shall, at the time of signature of the contract, notify the City Engineer in writing of the names and classifications of all the employees of the Contractor, Subcontractors, and Agents proposed for the work. In the alternative, the Contractor shall submit in writing the classifications of all the employees of the Contractor, Subcontractors and Agents and the total number of hours estimated in each classification for the work. This workforce profile(s) shall be reviewed by the City Engineer who may, within ten (10) days, object to the workforce profile(s) as not being reflective of that which would be required for the work. The Contractor may request that the workforce profile, or a portion of the workforce profile, be submitted after the signature of the contract but at least ten (10) days prior to the work commencing. Any costs or time loss resulting from modifications to the workforce profile as a result of the City Engineer's objections shall be the responsibility of the Contractor.

Payrolls and Records. The Contractor shall keep weekly payroll records setting forth the name, address, telephone number, classification, wage rate and fringe benefit package of all the employees who work on the contract, including the employees of the Contractor's subcontractors and agents. Such weekly payroll records must include the required information for all City contracts and all other contracts on which the employee worked during the week in which the employee worked on the contract. The Contractor shall also keep records of the individual time each employee worked on the project and for each day of the project. Such records shall also set forth the total number of hours of overtime credited to each such employee for each day and week and the amount of overtime pay received in that week. The records shall set forth the full weekly wages earned by each employee and the actual hourly wage paid to the employee.

The Contractor shall submit the weekly payroll records, including the records of the Contractor's subcontractors and agents, to the City Engineer for every week that work is being done on the contract. The submittal shall be within twenty-one (21) calendar days of the end of the Contractor's weekly pay period.

Employees shall receive the full amounts accrued at the time of the payment, computed at rates not less than those stated in the prevailing wage rate and each employee's rate shall be determined by the work that is done within the trade or occupation classification which should be properly assigned to the employee.

An employee's classification shall not be changed to a classification of a lesser rate during the contract. If, during the term of the contract, an employee works in a higher pay classification than the one which was previously properly assigned to the employee, then that employee shall be considered to be in the higher pay classification for the balance of the contract, receive the appropriate higher rate of pay, and she/he shall not receive a lesser rate during the balance of the

contract. For purposes of clarification, it is noted that there is a distinct difference between working in a different classification with higher pay and doing work within a classification that has varying rates of pay which are determined by the type of work that is done within the classification. For example, the classification "Operating Engineer" provides for different rates of pay for various classes of work and the Employer shall compensate an employee classified as an "Operating Engineer" based on the highest class of work that is done in one day. Therefore, an "Operating Engineer's" rate may vary on a day to day basis depending on the type of work that is done, but it will never be less than the base rate of an "Operating Engineer". Also, as a matter of clarification, it is recognized that an employee may work in a higher paying classification merely by chance and without prior intention, calculation or design. If such is the case and the performance of the work is truly incidental and the occurrence is infrequent, inconsequential and does not serve to undermine the single classification principle herein, then it may not be required that the employee be considered to be in the higher pay classification and receive the higher rate of pay for the duration of the contract. However, the Contractor is not precluded or prevented from paying the higher rate for the limited time that an employee performs work that is outside of the employee's proper classification.

Questions regarding an employee's classification, rate of pay or rate of pay within a classification, shall be resolved by reference to the established practice that predominates in the industry and on which the trade or occupation rate/classification is based. Rate of pay and classification disputes shall be resolved by relying upon practices established by collective bargaining agreements and guidelines used in such determination by appropriate recognized trade unions operating within the City of Madison.

The Contractor, its Subcontractors and Agents shall submit to interrogation regarding compliance with the provisions of this ordinance.

Mulcting of the employees by the Contractor, Subcontractor, and Agents on Public Works contracts, such as by kickbacks or other devices, is prohibited. The normal rate of wage of the employees of the Contractor, Subcontractor, and Agents shall not be reduced or otherwise diminished as a result of payment of the prevailing wage rate on a public works contract.

Hourly contributions. Hourly contributions shall be determined in accordance with the prevailing wage rate and with DWD. 290.01(10), Wis. Admin. Code.

Apprentices and Subjourney persons. Apprentices and sub journeypersons performing work on the project shall be compensated in accordance with the prevailing wage rate and with DWD 290.02, and 290.025, respectively, Wis. Admin. Code.

Straight Time Wages. The Contractor may pay straight time wages as determined by the prevailing wage rate and DWD 290.04, Wis. Admin. Code.

Overtime Wages. The Contractor shall pay overtime wages as required by the prevailing wage rate and DWD 290.05, Wis. Admin. Code.

Posting of Wage Rates and Hours. A clearly legible copy of the prevailing wage rate, together with the provisions of Sec. 66.0903(10)(a) and (11)(a), Wis. Stats., shall be kept posted in at least one conspicuous and easily accessible place at the project site by the Contractor and such notice shall remain posted during the full time any laborers, workers or mechanics are employed on the contract.

Evidence of Compliance by Contractor. Upon completion of the contract, the Contractor shall file with the Department of Public Works an affidavit stating:

a. That the Contractor has complied fully with the provisions and requirements of Sec. 66.0903(3), Wis. Stats., and Chapter DWD 290, Wis. Admin. Code; the Contractor has received evidence of compliance from each of the agents and subcontractors; and the

names and addresses of all of the subcontractors and agents who worked on the contract.

b. That full and accurate records have been kept, which clearly indicate the name and trade or occupation of every laborer, worker or mechanic employed by the Contractor in connection with work on the project. The records shall show the number of hours worked by each employee and the actual wages paid therefore; where these records will be kept and the name, address and telephone number of the person who will be responsible for keeping them. The records shall be retained and made available for a period of at least three (3) years following the completion of the project of public works and shall not be removed without prior notification to the municipality.

Evidence of Compliance by Agent and Subcontractor. Each agent and subcontractor shall file with the Contractor, upon completion of their portion of the work on the contract an affidavit stating that all the provisions of Sec. 66.0903(3), Wis. Stats., have been fully complied with and that full and accurate records have been kept, which clearly indicate the name and trade or occupation of every laborer, worker or mechanic employed by the Contractor in connection with work on the project. The records shall show the number of hours worked by each employee and the actual wages paid therefore; where these records shall be kept and the name, address and telephone number of the person who shall be responsible for keeping them. The records shall be retained and made available for a period of at least three (3) years following the completion of the project of public works and shall not be removed without prior notification to the municipality.

Failure to Comply with the Prevailing Wage Rate. If the Contractor fails to comply with the prevailing wage rate, she/he shall be in default on the contract. In addition, 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.

Establishment of Wage Rates. The Department of Public Works shall periodically obtain a current schedule of prevailing wage rates from DWD. The schedule shall be used to establish the City of Madison Prevailing Wage Rate Schedule for Public Works Construction (prevailing wage rate). The Department of Public Works may include known increases to the prevailing wage rate which can be documented and are to occur on a future specific date. The prevailing wage rate shall be included in public works contracts subsequently negotiated or solicited by the City. Except for known increases contained within the schedule, the prevailing wage rate shall not change during the contract. The approved wage rate and DWD prevailing wage requirements are attached hereto as Sec. I of the contract.

5. **Affirmative Action.** In the performance of the services under this Agreement the Contractor agrees not to discriminate against any employee or applicant because of race, religion, marital status, age, color, sex, disability, national origin or ancestry, income level or source of income, arrest record or conviction record, less than honorable discharge, physical appearance, sexual orientation, gender identity, political beliefs, or student status. The Contractor further agrees not to discriminate against any subcontractor or person who offers to subcontract on this contract because of race, religion, color, age, disability, sex, sexual orientation, gender identity or national origin.

The Contractor agrees that within thirty (30) days after the effective date of this agreement, the Contractor will provide to the City Affirmative Action Division certain workforce utilization statistics, using a form to be furnished by the City.

If the contract is still in effect, or if the City enters into a new agreement with the Contractor, within one year after the date on which the form was required to be provided, the Contractor will provide updated workforce information using a second form, also to be furnished by the City. The second form will be submitted to the City Affirmative Action Division no later than one year after the date on which the first form was required to be provided.

The Contractor further agrees that, for at least twelve (12) months after the effective date of this contract, it will notify the City Affirmative Action Division of each of its job openings at facilities in Dane County for which applicants not already employees of the Contractor are to be considered. The notice will include a job description, classification, qualifications and application procedures and deadlines. The Contractor agrees to interview and consider candidates referred by the Affirmative Action Division if the candidate meets the minimum qualification standards established by the Contractor, and if the referral is timely. A referral is timely if it is received by the Contractor on or before the date started in the notice.

Articles of Agreement
Article I

The Contractor shall take affirmative action in accordance with the provisions of this contract to insure that applicants are employed, and that employees are treated during employment without regard to race, religion, color, age, marital status, disability, sex, sexual orientation, gender identity or national original and that the employer shall provide harassment free work environment for the realization of the potential of each employee. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation and selection for training including apprenticeship insofar as it is within the control of the Contractor. The Contractor agrees to post in conspicuous places available to employees and applicants notices to be provided by the City setting out the provisions of the nondiscrimination clauses in this contract.

Article II

The Contractor shall in all solicitations or advertisements for employees placed by or on behalf of the Contractors state that all qualified or qualifiable applicants will be employed without regard to race, religion, color, age, marital status, disability, sex, sexual orientation, gender identity or national origin.

Article III

The Contractor shall send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding a notice to be provided by the City advising the labor union or worker's representative of the Contractor's equal employment opportunity and affirmative action commitments. Such notices shall be posted in conspicuous places available to employees and applicants for employment.

Article V

The Contractor agrees that it will comply with all provisions of the Affirmative Action Ordinance of the City of Madison, including the contract compliance requirements. The Contractor agrees to submit the model affirmative action plan for public works contractors in a form approved by the Affirmative Action Division Manager.

Article VI

The Contractor will maintain records as required by Section 39.02(9)(f) of the Madison General Ordinances and will provide the City Affirmative Action Division with access to such records and to persons who have relevant and necessary information, as provided in Section 39.02(9)(f). The City agrees to keep all such records confidential, except to the extent that public inspection is required by law.

Article VII

In the event of the Contractor's or subcontractor's failure to comply with the Equal Employment Opportunity and Affirmative Action Provisions of this contract or Section 39.03 and 39.02 of the Madison General Ordinances, it is agreed that the City at its option may do any or all of the following:

1. Cancel, terminate or suspend this Contract in whole or in part.

2. Declare the Contractor ineligible for further City contracts until the Affirmative Action requirements are met.

3. Recover on behalf of the City from the prime Contractor 0.5 percent of the contract award price for each week that such party fails or refuses to comply, in the nature of liquidated damages, but not to exceed a total of five percent (5%) of the contract price, or five thousand dollars ($5,000), whichever is less. Under public works contracts, if a subcontractor is in noncompliance, the City may recover liquidated damages from the prime Contractor in the manner described above. The preceding sentence shall not be construed to prohibit a prime Contractor from recovering the amount of such damage from the non-complying subcontractor.

Article VIII

The Contractor shall include the above provisions of this contract in every subcontract so that such provisions will be binding upon each subcontractor. The Contractor shall take such action with respect to any subcontractor as necessary to enforce such provisions, including sanctions provided for noncompliance.

Article IX

The Contractor shall allow the maximum feasible opportunity to small business enterprises to compete for any subcontracts entered into pursuant to this contract. (In federally funded contracts the terms "DBE, MBE and WBE" shall be substituted for the term "small business" in this Article.)

6. Substance Abuse Prevention Program Required. Prior to commencing work on the Contract, the Contractor, and any Subcontractor, shall have in place a written program for the prevention of substance abuse among its employees as required under Wis. Stat. Sec. 103.503.

7. **Contractor Hiring Practices.**

Ban the Box - Arrest and Criminal Background Checks. (Sec. 39.08, MGO)

This provision applies to all prime contractors on contracts entered into on or after January 1, 2016, and all subcontractors who are required to meet prequalification requirements under MGO 33.07(7)(I), MGO as of the first time they seek or renew pre-qualification status on or after January 1, 2016. The City will monitor compliance of subcontractors through the pre-qualification process.

a. **Definitions.** For purposes of this section, "Arrest and Conviction Record" includes, but is not limited to, information indicating that a person has been questioned, apprehended, taken into custody or detention, held for investigation, arrested, charged with, indicted or tried for any felony, misdemeanor or other offense pursuant to any law enforcement or military authority.

"Conviction record" includes, but is not limited to, information indicating that a person has been convicted of a felony, misdemeanor or other offense, placed on probation, fined, imprisoned or paroled pursuant to any law enforcement or military authority.

"Background Check" means the process of checking an applicant's arrest and conviction record, through any means.

b. **Requirements.** For the duration of this Contract, the Contractor shall:

1. Remove from all job application forms any questions, check boxes, or other inquiries regarding an applicant's arrest and conviction record, as defined herein.

2. Refrain from asking an applicant in any manner about their arrest or conviction record until after conditional offer of employment is made to the applicant in question.

3. Refrain from conducting a formal or informal background check or making any other inquiry using any privately or publicly available means of obtaining the arrest or conviction record of an applicant until after a conditional offer of employment is made to the applicant in question.

4. Make information about this ordinance available to applicants and existing employees, and post notices in prominent locations at the workplace with information about the ordinance and complaint procedure using language provided by the City.

5. Comply with all other provisions of Sec. 39.08, MGO.

c. **Exemptions:** This section shall not apply when:

1. Hiring for a position where certain convictions or violations are a bar to employment in that position under applicable law, or

2. Hiring a position for which information about criminal or arrest record, or a background check is required by law to be performed at a time or in a manner that would otherwise be prohibited by this ordinance, including a licensed trade or profession where the licensing authority explicitly authorizes or requires the inquiry in question.

To be exempt, Contractor has the burden of demonstrating that there is an applicable law or regulation that requires the hiring practice in question, if so, the contractor is exempt from all of the requirements of this ordinance for the position(s) in question.

WILLOW CREEK STORMWATER TREATMENT 2016
CONTRACT NO. 7330

IN WITNESS WHEREOF, the Contractor has hereunto set his/her hand and seal and the City has caused these presents to be sealed with its corporate seal and to be subscribed by its Mayor and City Clerk the day and year first above written.

Countersigned:

Witness 9/14/16 Date

Witness 9/14/16 Date

R. G. HUSTON CO., INC.
Company Name

President 9/14/16 Date

Secretary 9/14/16 Date

R. G. HUSTON CO., INC. CORPORATE SEAL 1975 WISCONSIN

CITY OF MADISON, WISCONSIN

Provisions have been made to pay the liability that will accrue under this contract.

Finance Director

Approved as to form:

City Attorney

Signed this 12th day of October, 2016

Witness

Mayor Date

Witness

City Clerk 10-5-2016 Date

Bond # 0194858

SECTION I: PAYMENT AND PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that we **R. G. HUSTON CO., INC.** as principal, and BERKLEY INSURANCE COMPANY Company of DES MOINES, IOWA as surety, are held and firmly bound unto the City of Madison, Wisconsin, in the sum of **ONE MILLION TWO HUNDRED THIRTY THOUSAND EIGHT HUNDRED EIGHT** ($1,230,808.00) Dollars, lawful money of the United States, for the payment of which sum to the City of Madison, we hereby bind ourselves and our respective executors and administrators firmly by these presents.

The condition of this Bond is such that if the above bounden shall on his/her part fully and faithfully perform all of the terms of the Contract entered into between him/herself and the City of Madison for the construction of:

WILLOW CREEK STORMWATER TREATMENT 2016
CONTRACT NO. 7330

in Madison, Wisconsin, and shall pay all claims for labor performed and material furnished in the prosecution of said work, and save the City harmless from all claims for damages because of negligence in the prosecution of said work, and shall save harmless the said City from all claims for compensation (under Chapter 102, Wisconsin Statutes) of employees and employees of subcontractor, then this Bond is to be void, otherwise of full force, virtue and effect.

Signed and sealed this 21st day of SEPTEMBER 2016

Countersigned:

Witness

Secretary

R. G. HUSTON CO., INC.
Company Name (Principal)

President

R. G. HUSTON CO., INC. CORPORATE SEAL 1975 WISCONSIN Seal

Approved as to form:

City Attorney

BERKLEY INSURANCE COMPANY
Surety Seal
☐ Salary Employee ☒ Commission

By
Attorney-in-Fact Dennis M. Barton

This certifies that I have been duly licensed as an agent for the above company in Wisconsin under National Producer Number 283633 for the year 2016, and appointed as attorney-in-fact with authority to execute this payment and performance bond which power of attorney has not been revoked.

9-21-16
Date

Agent Signature

No. BI- 145

POWER OF ATTORNEY
BERKLEY INSURANCE COMPANY
WILMINGTON, DELAWARE

NOTICE: The warning found elsewhere in this Power of Attorney affects the validity thereof. Please review carefully.

KNOW ALL MEN BY THESE PRESENTS, that BERKLEY INSURANCE COMPANY (the "Company"), a corporation duly organized and existing under the laws of the State of Delaware, having its principal office in Greenwich, CT, has made, constituted and appointed, and does by these presents make, constitute and appoint: ***Joseph L. Vigna, Dennis M. Barton or Elizabeth M. Fedyn of Arthur J. Gallagher & Company of Wisconsin, Inc. of Brookfield, WI*** its true and lawful Attorney-in-Fact, to sign its name as surety only as delineated below and to execute, seal, acknowledge and deliver any and all bonds and undertakings, with the exception of Financial Guaranty Insurance, providing that no single obligation shall exceed **Fifty Million and 00/100 U.S. Dollars (U.S.$50,000,000.00),** to the same extent as if such bonds had been duly executed and acknowledged by the regularly elected officers of the Company at its principal office in their own proper persons.

This Power of Attorney shall be construed and enforced in accordance with, and governed by, the laws of the State of Delaware, without giving effect to the principles of conflicts of laws thereof. This Power of Attorney is granted pursuant to the following resolutions which were duly and validly adopted at a meeting of the Board of Directors of the Company held on January 25, 2010:

RESOLVED, that, with respect to the Surety business written by Berkley Surety Group, the Chairman of the Board, Chief Executive Officer, President or any Vice President of the Company, in conjunction with the Secretary or any Assistant Secretary are hereby authorized to execute powers of attorney authorizing and qualifying the attorney-in-fact named therein to execute bonds, undertakings, recognizances, or other suretyship obligations on behalf of the Company, and to affix the corporate seal of the Company to powers of attorney executed pursuant hereto; and said officers may remove any such attorney-in-fact and revoke any power of attorney previously granted; and further

RESOLVED, that such power of attorney limits the acts of those named therein to the bonds, undertakings, recognizances, or other suretyship obligations specifically named therein, and they have no authority to bind the Company except in the manner and to the extent therein stated; and further

RESOLVED, that such power of attorney revokes all previous powers issued on behalf of the attorney-in-fact named; and further

RESOLVED, that the signature of any authorized officer and the seal of the Company may be affixed by facsimile to any power of attorney or certification thereof authorizing the execution and delivery of any bond, undertaking, recognizance, or other suretyship obligation of the Company; and such signature and seal when so used shall have the same force and effect as though manually affixed. The Company may continue to use for the purposes herein stated the facsimile signature of any person or persons who shall have been such officer or officers of the Company, notwithstanding the fact that they may have ceased to be such at the time when such instruments shall be issued.

IN WITNESS WHEREOF, the Company has caused these presents to be signed and attested by its appropriate officers and its corporate seal hereunto affixed this 10 day of May, 2013.

Attest:

(Seal)

By _____
Ira S. Lederman
Senior Vice President & Secretary

Berkley Insurance Company

By _____
Jeffrey M. Hafter
Senior Vice President

WARNING: THIS POWER INVALID IF NOT PRINTED ON BLUE "BERKLEY" SECURITY PAPER.

STATE OF CONNECTICUT)
) ss:
COUNTY OF FAIRFIELD)

Sworn to before me, a Notary Public in the State of Connecticut, this 10 day of May, 2013, by Ira S. Lederman and Jeffrey M. Hafter who are sworn to me to be the Senior Vice President and Secretary, and the Senior Vice President, respectively, of Berkley Insurance Company.

_____
Notary Public, State of Connecticut

KATHLEEN COREY
NOTARY PUBLIC
CONNECTICUT
MY COMMISSION EXPIRES OCTOBER 31, 2017

CERTIFICATE

I, the undersigned, Assistant Secretary of BERKLEY INSURANCE COMPANY, DO HEREBY CERTIFY that the foregoing is a true, correct and complete copy of the original Power of Attorney; that said Power of Attorney has not been revoked or rescinded and that the authority of the Attorney-in-Fact set forth therein, who executed the bond or undertaking to which this Power of Attorney is attached, is in full force and effect as of this date.

Given under my hand and seal of the Company, this 21st day of SEPT, 2016.

(Seal)

_____
Andrew M. Tuma

Instructions for Inquiries and Notices Under the Bond Attached to This Power

Berkley Surety Group is the affiliated underwriting manager for the surety business of: Acadia Insurance Company, Berkley Insurance Company, Berkley Regional Insurance Company, Carolina Casualty Insurance Company, Union Standard Insurance Company, Continental Western Insurance Company, and Union Insurance Company.

To verify the authenticity of the bond, please call (866) 768-3534 or email BSGInquiry@berkleysurety.com

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Any written notices, inquiries, claims or demands to the surety on the bond to which this Rider is attached should be directed to:

Berkley Surety Group
412 Mount Kemble Avenue
Suite 310N
Morristown, NJ 07960
Attention: Surety Claims Department

Or

email BSGClaim@berkleysurety.com

Please include with all notices the bond number and the name of the principal on the bond. Where a claim is being asserted, please set forth generally the basis of the claim. In the case of a payment or performance bond, please identify the project to which the bond pertains.

SECTION J: PREVAILING WAGE RATES

State of Wisconsin
Department of Workforce Development
Equal Rights Division

DEPARTMENTAL ORDER

ISSUE DATE: 1/8/2016

PROJECT:

ALL PUBLIC WORKS PROJECTS UNDER SEC. 66.0903, STATS-CITY OF MADISON
MADISON CITY, DANE COUNTY, WI
Determination No. 201600001

PROJECT OWNER:	REQUESTER:
ROBERT F PHILLIPS, INTERIM CITY ENGINEER CITY OF MADISON - ENGINEERING 210 M L KING JR BLVD, RM 115 MADISON, WI 537033342	ROBERT F PHILLIPS, INTERIM CITY ENGINEER CITY OF MADISON - ENGINEERING 210 M L KING JR BLVD, RM 115 MADISON, WI 537033342

ADDITIONAL CONTACT:

NORMAN DAVIS, CONTRACT COMPLIANCE
CITY OF MADISON-DEPT OF CIVIL RTS-AA DIV
210 MARTIN L KING JR BLVD, RM 523
MADISON, WI 537033342

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.

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.

Enclosures

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 **FINAL ORDER** of the department unless a timely request for an administrative review is filed with the department.

ISSUED BY:

Equal Rights Division
Labor Standards Bureau
Construction Wage Standards Section
P.O. Box 8928, Madison, WI 53708-8928
(608)266-6861

Web Site: http://dwd.wisconsin.gov/er/

PREVAILING WAGE RATE DETERMINATION
Issued by the State of Wisconsin
Department of Workforce Development
Pursuant to s. 66.0903, Wis. Stats.
Issued On: 01/08/2016
Amended On: 01/28/2016

DETERMINATION NUMBER:	201600001
EXPIRATION DATE:	Prime Contracts MUST Be Awarded or Negotiated On Or Before 12/31/2016. If NOT, You MUST Reapply.
PROJECT NAME:	ALL PUBLIC WORKS PROJECTS UNDER SEC. 66.0903, STATS-CITY OF MADISON
PROJECT LOCATION:	MADISON CITY, DANE COUNTY, WI
CONTRACTING AGENCY:	CITY OF MADISON - ENGINEERING

CLASSIFICATION:	Contractors are responsible for correctly classifying their workers. Either call the Department of Workforce Development (DWD) with trade or classification questions or consult DWD's Dictionary of Occupational Classifications & Work Descriptions on the DWD website at: dwd.wisconsin.gov/er/prevailing_wage_rate/Dictionary/dictionary_main.htm.
OVERTIME:	Time and one-half must be paid for all hours worked: - over 10 hours per day on prevailing wage projects - over 40 hours per calendar week - Saturday and Sunday - on all of the following holidays: January 1; the last Monday in May; July 4; the 1st Monday in September; the 4th Thursday in November; December 25; - The day before if January 1, July 4 or December 25 falls on a Saturday; - The day following if January 1, July 4 or December 25 falls on a Sunday. Apply the time and one-half overtime calculation to whichever is higher between the Hourly Basic Rate listed on this project determination or the employee's regular hourly rate of pay. Add any applicable Premium or DOT Premium to the Hourly Basic Rate before calculating overtime. A DOT Premium (discussed below) may supersede this time and one-half requirement.
FUTURE INCREASE:	When a specific trade or occupation requires a future increase, you MUST add the full hourly increase to the "TOTAL" on the effective date(s) indicated for the specific trade or occupation.
PREMIUM PAY:	If indicated for a specific trade or occupation, the full amount of such pay MUST be added to the "HOURLY BASIC RATE OF PAY" indicated for such trade or occupation, whevenever such pay is applicable.
DOT PREMIUM:	This premium only applies to highway and bridge projects owned by the Wisconsin Department of Transportation and to the project type heading "Airport Pavement or State Highway Construction." DO NOT apply the premium calculation under any other project type on this determination.
APPRENTICES:	Pay apprentices a percentage of the applicable journeyperson's hourly basic rate of pay and hourly fringe benefit contributions specified in this determination. Obtain the appropriate percentage from each apprentice's contract or indenture.
SUBJOURNEY:	Subjourney wage rates may be available for some of the trades or occupations indicated below with the exception of laborers, truck drivers and heavy equipment operators. Any employer interested in using a subjourney classification on this project MUST complete Form ERD-10880 and request the applicable wage rate from the Department of Workforce Development PRIOR to using the subjourney worker on this project.

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

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

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

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

s. 66.0903 (10) RECORDS; INSPECTION; ENFORCEMENT.
(a) Each contractor, subcontractor, or contractor's or subcontractor's agent performing work on a project of public works that is subject to this section shall keep full and accurate records clearly indicating the name and trade or occupation of every person performing the work described in sub. (4) and an accurate record of the number of hours worked by each of those persons and the actual wages paid for the hours worked.

s. 66.0903 (11) LIABILITY AND PENALTIES.
(a) 1. Any contractor, subcontractor, or contractor's or subcontractor's agent who fails to pay the prevailing wage rate determined by the department under sub. (3) or who pays less than 1.5 times the hourly basic rate of pay for all hours worked in excess of the prevailing hours of labor is liable to any affected employee in the amount of his or her unpaid wages or his or her unpaid overtime compensation and in an additional amount as liquidated damages as provided under subd. 2., 3., whichever is applicable.
2. If the department determines upon inspection under sub. (10) (b) or (c) that a contractor, subcontractor, or contractor's or subcontractor's agent has failed to pay the prevailing wage rate determined by the department under sub. (3) or has paid less than 1.5 times the hourly basic rate of pay for all hours worked in excess of the prevailing hours of labor, the department shall order the contractor to pay to any affected employee the amount of his or her unpaid wages or his or her unpaid overtime compensation and an additional amount equal to 100 percent of the amount of those unpaid wages or that unpaid overtime compensation as liquidated damages within a period specified by the department in the order.
3. In addition to or in lieu of recovering the liability specified in subd. 1. as provided in subd. 2., any employee for and in behalf of that employee and other employees similarly situated may commence an action to recover that liability in any court of competent jurisdiction. If the court finds that a contractor, subcontractor, or contractor's or subcontractor's agent has failed to pay the prevailing wage rate determined by the department under sub. (3) or has paid less than 1.5 times the hourly basic rate of pay for all hours worked in excess of the prevailing hours of labor, the court shall order the contractor, subcontractor, or agent to pay to any affected employee the amount of his or her unpaid wages or his or her unpaid overtime compensation and an additional amount equal to 100 percent of the amount of those unpaid wages or that unpaid overtime compensation as liquidated damages.
5. No employee may be a party plaintiff to an action under subd. 3. unless the employee consents in writing to become a party and the consent is filed in the court in which the action is brought. Notwithstanding s. 814.04 (1), the court shall, in addition to any judgment awarded to the plaintiff, allow reasonable attorney fees and costs to be paid by the defendant.

BUILDING OR HEAVY CONSTRUCTION

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

SKILLED TRADES

Fringe Benefits Must Be Paid On All Hours Worked

CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
101	Acoustic Ceiling Tile Installer Future Increase(s): Add $1.42/hr on 6/1/2016.	33.02	17.12	50.14
102	Boilermaker	33.35	28.29	61.64
103	Bricklayer, Blocklayer or Stonemason Future Increase(s): 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.	32.86	20.03	52.89
104	Cabinet Installer Future Increase(s): Add $1.42/hr on 6/1/2016.	33.02	17.12	50.14
105	Carpenter Future Increase(s): 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.	33.02	17.12	50.14
106	Carpet Layer or Soft Floor Coverer Future Increase(s): Add $1.42/hr on 6/1/2016.	33.02	17.12	50.14
107	Cement Finisher	33.15	16.40	49.55
108	Drywall Taper or Finisher	29.97	20.08	50.05
109	Electrician Future Increase(s): Add $1.25/hr on 6/1/16. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	35.75	19.97	55.72
110	Elevator Constructor	46.05	27.09	73.14
111	Fence Erector	18.72	5.78	24.50

CODE	TRADE OR OCCUPATION **Fringe Benefits Must Be Paid On All Hours Worked**	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
112	Fire Sprinkler Fitter	36.78	19.97	56.75
113	Glazier	38.27	14.42	52.69
114	Heat or Frost Insulator	33.53	27.31	60.84
115	Insulator (Batt or Blown) Future Increase(s): Add $1.42/hr on 6/1/2016.	33.02	17.12	50.14
116	Ironworker	32.50	20.58	53.08
117	Lather	32.72	16.00	48.72
118	Line Constructor (Electrical)	40.81	18.06	58.87
119	Marble Finisher	25.72	18.54	44.26
120	Marble Mason	32.82	18.67	51.49
121	Metal Building Erector	22.40	6.27	28.67
122	Millwright Future Increase(s): Add $1.47/hr on 6/1/2016.	34.79	17.17	51.96
123	Overhead Door Installer	31.93	13.39	45.32
124	Painter	26.70	16.65	43.35
125	Pavement Marking Operator	30.00	18.81	48.81
126	Piledriver Future Increase(s): 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.	33.56	17.12	50.68
127	Pipeline Fuser or Welder (Gas or Utility)	44.20	18.26	62.46
129	Plasterer	32.82	18.81	51.63
130	Plumber	38.82	18.02	56.84
132	Refrigeration Mechanic	45.55	18.71	64.26
133	Roofer or Waterproofer	29.65	1.71	31.36
134	Sheet Metal Worker	35.55	24.67	60.22
135	Steamfitter	45.55	18.71	64.26
137	Teledata Technician or Installer	22.50	12.74	35.24
138	Temperature Control Installer	34.97	19.67	54.64
139	Terrazzo Finisher	25.72	18.54	44.26

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
140	Terrazzo Mechanic Future Increase(s): Add $1.60 on 06/06/2016	33.98	18.96	52.94
141	Tile Finisher	30.00	0.00	30.00
142	Tile Setter Future Increase(s): Add $1.45/hr on 6/06/2016.	31.59	19.61	51.20
143	Tuckpointer, Caulker or Cleaner Future Increase(s): 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.	32.86	20.03	52.89
144	Underwater Diver (Except on Great Lakes)	36.74	16.00	52.74
146	Well Driller or Pump Installer Future Increase(s): Add $1/hr on 6/1/2016; Add $1/hr on 6/1/2017.	25.32	16.40	41.72
147	Siding Installer	17.00	6.71	23.71
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	36.73	20.41	57.14
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	32.65	15.52	48.17
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	28.57	13.71	42.28
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	26.53	13.55	40.08
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	25.00	12.55	37.55

TRUCK DRIVERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
201	Single Axle or Two Axle	33.69	19.78	53.47
203	Three or More Axle	18.25	21.61	39.86
204	Articulated, Euclid, Dumptor, Off Road Material Hauler Future Increase(s): Add $1.60/hr on 6/3/2016.	34.69	20.38	55.07
205	Pavement Marking Vehicle	18.25	21.61	39.86
207	Truck Mechanic	18.25	21.61	39.86

LABORERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
301	General Laborer Future Increase(s): 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.	25.81	15.63	41.44
302	Asbestos Abatement Worker	17.00	4.22	21.22
303	Landscaper	21.90	9.83	31.73
310	Gas or Utility Pipeline Laborer (Other Than Sewer and Water)	20.83	18.39	39.22
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	19.35	0.00	19.35
314	Railroad Track Laborer	17.00	3.96	20.96
315	Final Construction Clean-Up Worker	29.01	7.20	36.21

HEAVY EQUIPMENT OPERATORS SITE PREPARATION, UTILITY OR LANDSCAPING WORK ONLY

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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 6/3/2016.	35.22	20.38	55.60
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 6/3/2016.	34.69	20.38	55.07

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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 6/3/2016.	32.62	20.38	53.00
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. Future Increase(s): Add $1.25/hr on 1/1/2017. Premium Increase(s): Add $.50/hr for Friction Crane, Lattice Boom or Crane Certification (CCO).	44.05	23.24	67.29
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. Future Increase(s): Add $1.25/hr on 1/1/2017.	39.20	23.09	62.29
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.	36.72	21.15	57.87

HEAVY EQUIPMENT OPERATORS
EXCLUDING SITE PREPARATION, UTILITY, PAVING LANDSCAPING WORK

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
508	Boring Machine (Directional); Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self-Erecting Tower Crane With a Lifting Capacity of Over 4,000 Lbs., Crane With Boom Dollies; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Master Mechanic. Future Increase(s): Add $1.60/hr on 6/3/2016. Premium Increase(s):	37.67	20.38	58.05

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
	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.			
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 6/3/2016. Premium Increase(s): Add $.25/hr for all >45 Ton lifting capacity cranes.	36.42	20.38	56.80
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 6/3/2016.	35.22	20.38	55.60
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 6/3/2016.	34.69	20.38	55.07

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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 6/3/2016.	32.62	20.38	53.00
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 6/3/2016.	31.99	20.38	52.37
514	Gas or Utility Pipeline, Except Sewer & Water (Primary Equipment). Future Increase(s): Add $1/hr on 5/30/2016.	37.04	22.44	59.48
515	Gas or Utility Pipeline, Except Sewer & Water (Secondary Equipment).	33.82	20.30	54.12
516	Fiber Optic Cable Equipment	29.50	0.68	30.18

SEWER, WATER OR TUNNEL CONSTRUCTION

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

SKILLED TRADES

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
103	Bricklayer, Blocklayer or Stonemason	32.82	18.67	51.49
105	Carpenter	32.72	16.00	48.72
107	Cement Finisher Future Increase(s): 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.	35.97	17.85	53.82
109	Electrician	52.00	1.50	53.50
111	Fence Erector	18.72	5.78	24.50
116	Ironworker	32.50	20.58	53.08
118	Line Constructor (Electrical)	40.81	18.06	58.87
125	Pavement Marking Operator	30.00	18.81	48.81
126	Piledriver	33.24	16.00	49.24
130	Plumber Future Increase(s): Add $1.50 on 6/1/16	39.95	19.45	59.40
135	Steamfitter	44.20	18.26	62.46
137	Teledata Technician or Installer	22.50	12.74	35.24
143	Tuckpointer, Caulker or Cleaner	32.82	18.67	51.49
144	Underwater Diver (Except on Great Lakes)	31.00	20.43	51.43
146	Well Driller or Pump Installer Future Increase(s): Add $1/hr on 6/1/2016; Add $1/hr on 6/1/2017.	25.32	16.40	41.72
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	36.73	15.92	52.65
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	32.65	15.52	48.17

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	28.57	13.71	42.28
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	26.53	13.55	40.08
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.75	12.97	34.72

TRUCK DRIVERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
201	Single Axle or Two Axle	19.00	0.00	19.00
203	Three or More Axle	19.00	0.00	19.00
204	Articulated, Euclid, Dumptor, Off Road Material Hauler	33.69	19.78	53.47
205	Pavement Marking Vehicle	19.00	0.00	19.00
207	Truck Mechanic	19.00	0.00	19.00

LABORERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
301	General Laborer Future Increase(s): 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 tunnel work 0-15 lbs. compressed air; Add $2.00 for over 15-30 lbs. compressed air; Add $3.00 for over 30 lbs. compressed air.	27.18	15.64	42.82
303	Landscaper	41.00	0.00	41.00
304	Flagperson or Traffic Control Person	20.92	14.80	35.72
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	19.35	0.00	19.35
314	Railroad Track Laborer	17.00	3.96	20.96

HEAVY EQUIPMENT OPERATORS
SEWER, WATER OR TUNNEL WORK

Fringe Benefits Must Be Paid On All Hours Worked

CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
521	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of 130,000 Lbs. or Over; Caisson Rig; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self-Erecting Tower Crane With a Lifting Capacity Of Over 4,000 Lbs., Crane With Boom Dollies; Master Mechanic; Pile Driver. Premium Increase(s): Add $.25/hr for operating tower crane.	38.09	20.80	58.89
522	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Boring Machine (Directional); Concrete Bump Cutter, Grinder, Planing or Grooving Machine; Concrete Laser/Screed; Concrete Paver (Slipform); Concrete Pump (Over 46 Meter), Concrete Conveyor (Rotec or Bidwell Type); Concrete Spreader & Distributor; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With a Lifting Capacity of 4,000 Lbs. & Under; Dredge (NOT Performing Work on the Great Lakes); Milling Machine; Skid Rig; Telehandler; Traveling Crane (Bridge Type). Future Increase(s): Add $1.60/hr on 6/3/2016.	35.22	20.38	55.60
523	Air Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Boring Machine (Horizontal or Vertical); Bulldozer or Endloader (Over 40 hp); Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Concrete Pump (46 Meter & Under), Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Gradall (Cruz-Aire Type); Grader or Motor Patrol; Hydro-Blaster (10,000 PSI or Over); Manhoist; Material or Stack Hoist; Mechanic or Welder; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yd or More Capacity; Screed (Milling Machine); Sideboom; Straddle Carrier or Travel Lift; Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Tractor or Truck Mounted Hydraulic Crane (10 Tons or Under); Trencher (Wheel Type or Chain Type Having Over 8-Inch Bucket). Future Increase(s): Add $1.60/hr on 6/3/2016.	34.69	20.38	55.07

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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.	33.69	21.75	55.44
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. Future Increase(s): Add $1.60/hr on 6/3/2016.	31.99	20.38	52.37
526	Boiler (Temporary Heat); Forklift; Greaser; Oiler.	30.99	19.78	50.77
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.	36.72	21.15	57.87
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.	36.72	21.15	57.87

AIRPORT PAVEMENT OR STATE HIGHWAY CONSTRUCTION

Includes all airport projects (excluding buildings) and all projects awarded by the Wisconsin Department of Transportation (excluding buildings).

SKILLED TRADES

Fringe Benefits Must Be Paid On All Hours Worked

CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
103	Bricklayer, Blocklayer or Stonemason	31.55	18.52	50.07
105	Carpenter Future Increase(s): 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.	33.02	17.12	50.14
107	Cement Finisher Future Increase(s): 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.	35.97	17.85	53.82
109	Electrician Future Increase(s): Add $1.25/hr on 6/1/16. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	35.75	19.97	55.72
111	Fence Erector	35.62	0.00	35.62
116	Ironworker	32.50	20.58	53.08
118	Line Constructor (Electrical)	40.81	18.06	58.87
124	Painter	29.87	18.79	48.66
125	Pavement Marking Operator	31.24	17.30	48.54
126	Piledriver	30.11	21.09	51.20
133	Roofer or Waterproofer	30.40	2.23	32.63
137	Teledata Technician or Installer	22.50	12.74	35.24
143	Tuckpointer, Caulker or Cleaner	32.82	18.67	51.49

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
144	Underwater Diver (Except on Great Lakes)	36.74	16.00	52.74
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	36.73	15.92	52.65
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	32.65	17.37	50.02
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	28.57	13.71	42.28
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	26.53	13.09	39.62
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.75	12.97	34.72

TRUCK DRIVERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
201	Single Axle or Two Axle	36.72	21.15	57.87
203	Three or More Axle 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.	25.78	18.96	44.74
204	Articulated, Euclid, Dumptor, Off Road Material Hauler Future Increase(s): Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://wisconsindot.gov/Pages/doing-bus/civil-rights/labornwage/prevailing-wage-compliance.aspx.	30.82	21.85	52.67
205	Pavement Marking Vehicle	23.82	17.72	41.54
206	Shadow or Pilot Vehicle	25.28	18.31	43.59
207	Truck Mechanic	25.28	18.31	43.59

LABORERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
301	General Laborer Future Increase(s): Add $1.00/hr eff. 06/01/2016; Add $1.00/hr eff. 06/01/2017 Premium Increase(s): Add $.10/hr for topman, air tool operator, vibrator or tamper operator (mechanical hand operated), chain saw operator and demolition burning torch laborer; Add $.15/hr for bituminous worker (raker and luteman), formsetter (curb, sidewalk and pavement) and strike off man; Add $.20/hr for blaster and powderman; Add $.25/hr for bottomman; Add $.35/hr for line and grade specialist; Add $.45/hr for pipelayer. / 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).	30.95	15.65	46.60
302	Asbestos Abatement Worker	17.00	4.22	21.22
303	Landscaper Future Increase(s): 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).	30.95	15.65	46.60
304	Flagperson or Traffic Control Person Future Increase(s): 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 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.	27.30	15.65	42.95

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	19.35	0.00	19.35
314	Railroad Track Laborer	17.00	3.96	20.96

HEAVY EQUIPMENT OPERATORS
AIRPORT PAVEMENT OR STATE HIGHWAY CONSTRUCTION

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
531	Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self-Erecting Tower Crane With a Lifting Capacity Of Over 4,000 Lbs., Crane With Boom Dollies; Traveling Crane (Bridge Type). Future Increase(s): Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://wisconsindot.gov/Pages/doing-bus/civil-rights/labornwage/prevailing-wage-compliance.aspx.	38.27	21.85	60.12
532	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 Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With A Lifting Capacity Of 4,000 Lbs., & Under; Dredge (NOT Performing Work on the Great Lakes); Licensed Boat Pilot (NOT Performing Work on the Great Lakes); Pile Driver. Future Increase(s): Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://wisconsindot.gov/Pages/doing-bus/civil-rights/labornwage/prevailing-wage-compliance.aspx.	37.77	21.85	59.62

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
533	Air Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Asphalt Heater, Planer & Scarifier; Asphalt Milling Machine; Asphalt Screed; Automatic Subgrader (Concrete); 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; Boatmen (NOT Performing Work on the Great Lakes); 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); Material or Stack Hoist; Mechanic or Welder; Milling Machine; Post Hole Digger or Driver; 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); 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. Future Increase(s): Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://wisconsindot.gov/Pages/doing-bus/civil-rights/labornwage/prevailing-wage-compliance.aspx.	37.27	21.85	59.12

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
534	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 (Asphalt Plant, Pile Driver & Derrick NOT Performing Work on the Great Lakes); Forklift; Greaser; Hoist (Tugger, Automatic); Jeep Digger; Joint Sawer (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; Tining or Curing Machine. Future Increase(s): Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://wisconsindot.gov/Pages/doing-bus/civil-rights/labornwage/prevailing-wage-compliance.aspx.	37.01	21.85	58.86
535	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Augers (Vertical & Horizontal); 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. Future Increase(s): Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://wisconsindot.gov/Pages/doing-bus/civil-rights/labornwage/prevailing-wage-compliance.aspx..	36.72	21.85	58.57
536	Fiber Optic Cable Equipment.	29.50	0.68	30.18
537	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	41.65	21.71	63.36
538	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

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
539	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.	36.72	21.15	57.87
540	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.	36.72	21.15	57.87

LOCAL STREET OR MISCELLANEOUS PAVING CONSTRUCTION

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

SKILLED TRADES

Fringe Benefits Must Be Paid On All Hours Worked

CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
103	Bricklayer, Blocklayer or Stonemason	32.82	18.67	51.49
105	Carpenter Future Increase(s): 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.	33.02	17.12	50.14
107	Cement Finisher Future Increase(s): 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.	35.97	17.85	53.82
109	Electrician Future Increase(s): Add $1.25/hr on 6/1/16. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	35.75	19.97	55.72
111	Fence Erector	18.72	5.78	24.50
116	Ironworker	32.50	20.58	53.08
118	Line Constructor (Electrical)	40.81	18.06	58.87
124	Painter	26.70	16.65	43.35
125	Pavement Marking Operator	30.00	18.81	48.81
126	Piledriver Future Increase(s): 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.	33.56	17.12	50.68

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
133	Roofer or Waterproofer	29.65	1.71	31.36
137	Teledata Technician or Installer	22.50	12.74	35.24
143	Tuckpointer, Caulker or Cleaner	32.82	18.67	51.49
144	Underwater Diver (Except on Great Lakes)	36.74	16.00	52.74
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	36.73	15.92	52.65
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	32.65	15.52	48.17
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	28.57	13.71	42.28
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	26.53	13.55	40.08
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.75	12.97	34.72

TRUCK DRIVERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
201	Single Axle or Two Axle	18.00	0.00	18.00
203	Three or More Axle	18.00	0.00	18.00
204	Articulated, Euclid, Dumptor, Off Road Material Hauler Future Increase(s): Add $1.60/hr on 6/3/2016.	34.69	20.38	55.07
205	Pavement Marking Vehicle	18.00	0.00	18.00
206	Shadow or Pilot Vehicle	18.00	0.00	18.00
207	Truck Mechanic	18.00	0.00	18.00

LABORERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
301	General Laborer	26.34	15.17	41.51

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
303	Landscaper Future Increase(s): 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).	30.67	15.65	46.32
304	Flagperson or Traffic Control Person	20.92	14.80	35.72
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	19.35	0.00	19.35
314	Railroad Track Laborer	17.00	3.96	20.96

HEAVY EQUIPMENT OPERATORS
CONCRETE PAVEMENT OR BRIDGE WORK

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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 $1.60/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.	37.67	20.38	58.05

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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 $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://wisconsindot.gov/Pages/doing-bus/civil-rights/labornwage/prevailing-wage-compliance.aspx.	37.77	21.85	59.62
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. Future Increase(s): Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://wisconsindot.gov/Pages/doing-bus/civil-rights/labornwage/prevailing-wage-compliance.aspx.	37.27	21.85	59.12

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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 Sawer (Multiple Blade); Launch (NOT Performing Work on the Great Lakes); Lift Slab Machine; Mechanical Float; Mulcher; Power Subgrader; Robotic Tool Carrier (Wlth 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 $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://wisconsindot.gov/Pages/doing-bus/civil-rights/labornwage/prevailing-wage-compliance.aspx.	37.27	21.85	59.12
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.	31.62	19.78	51.40
546	Fiber Optic Cable Equipment.	29.50	0.68	30.18
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. Future Increase(s): Add $1.25/hr on 1/1/2017. Premium Increase(s): Add $.50/hr for Friction Crane, Lattice Boom or Crane Certification (CCO).	44.05	23.24	67.29
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.	36.72	21.15	57.87

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.	36.72	21.15	57.87

HEAVY EQUIPMENT OPERATORS
ASPHALT PAVEMENT OR OTHER WORK

Fringe Benefits Must Be Paid On All Hours Worked

CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
551	Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self Erecting Tower Crane With a Lifting Capacity of Over 4,000 Lbs., Crane With Boom Dollies; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads and/or Jib Lengths Measuring 176 Ft or Over; Master Mechanic.	36.67	19.78	56.45
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 $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://wisconsindot.gov/Pages/doing-bus/civil-rights/labornwage/prevailing-wage-compliance.aspx.	37.77	21.85	59.62

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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. Future Increase(s): Add $1.60/hr on 6/3/2016.	34.69	20.38	55.07
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 Sawer (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.	36.17	19.19	55.36
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 $1.60/hr on 6/3/2016.	32.62	20.38	53.00
556	Fiber Optic Cable Equipment.	29.50	0.68	30.18

RESIDENTIAL OR AGRICULTURAL CONSTRUCTION

Includes single family houses or apartment buildings of no more than four (4) stories in height and all buildings, structures or facilities that are primarily used for agricultural or farming purposes, excluding commercial buildings. For classification purposes, the exterior height of a residential building, in terms of stories, is the primary consideration. All incidental items such as site work, driveways, parking lots, private sidewalks, private septic systems or sewer and water laterals connected to a public system and swimming pools are included within this definition. Residential buildings of five (5) stories and above are NOT included within this definition.

SKILLED TRADES

Fringe Benefits Must Be Paid On All Hours Worked

CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
101	Acoustic Ceiling Tile Installer	37.41	0.00	37.41
102	Boilermaker	33.35	28.29	61.64
103	Bricklayer, Blocklayer or Stonemason	32.82	9.93	42.75
104	Cabinet Installer	20.00	0.46	20.46
105	Carpenter	25.39	5.03	30.42
106	Carpet Layer or Soft Floor Coverer	24.04	4.89	28.93
107	Cement Finisher	23.86	3.43	27.29
108	Drywall Taper or Finisher	27.00	0.00	27.00
109	Electrician	20.00	12.47	32.47
110	Elevator Constructor	46.05	27.09	73.14
111	Fence Erector	19.45	4.70	24.15
112	Fire Sprinkler Fitter	33.00	18.96	51.96
113	Glazier	38.27	14.42	52.69
114	Heat or Frost Insulator	17.00	0.00	17.00
115	Insulator (Batt or Blown)	20.00	12.35	32.35
116	Ironworker	24.30	14.25	38.55
117	Lather	25.39	5.03	30.42
119	Marble Finisher	25.72	18.54	44.26
120	Marble Mason	32.82	9.93	42.75
121	Metal Building Erector	13.60	6.57	20.17
123	Overhead Door Installer	18.00	0.00	18.00
124	Painter	26.24	0.00	26.24
125	Pavement Marking Operator	30.00	18.81	48.81

CODE	TRADE OR OCCUPATION Fringe Benefits Must Be Paid On All Hours Worked	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
129	Plasterer	30.00	9.21	39.21
130	Plumber	30.00	11.56	41.56
132	Refrigeration Mechanic	22.50	9.03	31.53
133	Roofer or Waterproofer	21.00	4.10	25.10
134	Sheet Metal Worker	23.22	5.45	28.67
135	Steamfitter	17.05	0.94	17.99
137	Teledata Technician or Installer	22.50	12.74	35.24
138	Temperature Control Installer	22.50	2.36	24.86
139	Terrazzo Finisher	25.72	18.54	44.26
140	Terrazzo Mechanic	33.67	17.82	51.49
141	Tile Finisher	30.00	0.00	30.00
142	Tile Setter Future Increase(s): Add $1.45/hr on 6/06/2016.	31.59	19.61	51.20
143	Tuckpointer, Caulker or Cleaner	25.00	2.99	27.99
146	Well Driller or Pump Installer	29.00	0.64	29.64
147	Siding Installer	14.00	0.00	14.00

TRUCK DRIVERS

CODE	TRADE OR OCCUPATION Fringe Benefits Must Be Paid On All Hours Worked	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
201	Single Axle or Two Axle	16.50	0.50	17.00
203	Three or More Axle	21.53	3.34	24.87
205	Pavement Marking Vehicle	21.53	3.34	24.87
207	Truck Mechanic	21.53	3.34	24.87

LABORERS

CODE	TRADE OR OCCUPATION Fringe Benefits Must Be Paid On All Hours Worked	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
301	General Laborer	17.20	9.26	26.46
302	Asbestos Abatement Worker	18.00	3.22	21.22

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
303	Landscaper	15.00	4.03	19.03
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	19.35	0.00	19.35
315	Final Construction Clean-Up Worker	15.00	0.00	15.00

HEAVY EQUIPMENT OPERATORS
RESIDENTIAL OR AGRICULTURAL CONSTRUCTION

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
557	Asphalt Heater, Planer & Scarifier; Asphalt Milling Machine; Asphalt Screed; Backhoe (Track Type); 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 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; Crane, Shovel, Dragline, Clamshells; Forestry Equipment, TImbco, Tree Shear, Tub Grinder, Processor; 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; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yds or More Capacity; Shoulder Widener; Skid Rig; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); 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); WInches & A-Frames.	34.22	19.55	53.77
558	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Backfiller; Belting, Burlap, Texturing Machine; Boiler (Temporary Heat); Broom or Sweeper; Compactor (Self-Propelled or Tractor Mounted, Towed & LIght Equipment); Concrete Finishing Machine (Road Type); Farm or Industrial Type Tractor; Forklift; Generator (&/or 150 KW or Over); Heaters (Mechanical); High Pressure Utility Locating Machine (Daylighting Machine); Jeep Digger; Lift Slab Machine; MuIcher; Oiler; Post Hole Digger or Driver; Power Subgrader; Pump (3 Inch or Over) or Well Points; Robotic Tool Carrier (With or Without Attachments); Rock, Stone Breaker; Roller (Rubber Tire, 5 Tons or Under); Screed (Milling Machine); Self Propelled Chip Spreader; Shouldering Machine; Skid Steer Loader (With or Without Attachments); Stump Chipper; Telehandler; Vibratory Hammer or Extractor, Power Pack. Future Increase(s): Add $1.60/hr on 6/3/2016.	31.99	20.38	52.37

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

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STATE OF WISCONSIN
DWD
Department of Workforce Development

Scott Walker, Governor
Reginald J. Newson, Secretary

THE 2015-17 BUDGET BILL MADE SIGNIFICANT CHANGES TO WISCONSIN'S PREVAILING WAGE LAWS. HOWEVER, THOSE CHANGES DO NOT GO INTO EFFECT UNTIL JANUARY 1, 2017.

During calendar year 2016, DWD will continue to enforce prevailing wage laws for local governmental unit and state agency public works projects under current prevailing wage laws.

2015 Wisconsin Act 55 (the budget bill) repealed the state prevailing wage law for **local governmental units** such as villages, towns, cities, school districts, or sewerage districts effective January 1, 2017. However, if a local governmental unit:

- issues a Request for Bids before January 1, 2017, for a project of public works that is subject to bidding or,
- enters into a contract before January 1, 2017, for a project of public works that is not subject to bidding,

then those public works projects are subject to the current prevailing wage law (§66.0903, Wis. Stats.) through the life of the project. Projects of public works with prevailing wage project determinations issued prior to 2017 continue to be subject to the current prevailing wage law through the life of the project even though the project may have work going on in 2017 or subsequent years.

Contractors working on local governmental unit projects with prevailing wage rate determinations must continue to pay employees the appropriate prevailing wage and maintain required prevailing wage payroll records. For instance, if a contractor is working in 2018 on a public works project with a project determination issued prior to 2017, then the contractor is required to comply with the "old" prevailing wage rate law (§66.0903, Wis. Stats.). After January 1, 2017, DWD will continue to enforce prevailing wage requirements for projects with DWD prevailing wage determinations issued under the "old" prevailing wage laws (§§ 66.0903 & 103.49, Wis. Stats.).

For new public works projects starting on January 1, 2017, state prevailing wage law will only apply to **state agency** and **state highway** projects. Prevailing wage rates applicable to state agencies will be those issued by the U.S. Department of Labor under the Davis-Bacon Act, 40 U.S.C. 3142. The Wisconsin Department of Administration will enforce the new state agency prevailing wage law (§16.856, Wis. Stats.) and the Wisconsin Department of Transportation will continue to enforce prevailing wage on state highway projects (under a law renumbered as §84.062, Wis. Stats.).

(Updated-122215)

State of Wisconsin
Department of Workforce Development
Equal Rights Division
Labor Standards Bureau

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.

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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. For further assistance, call the Equal Rights Division at 608-266-6861 and ask for prevailing wage.