HIGHWAY WORK PROPOSAL

Proposal Number: Ø 7

Wisconsin Department of Transportation
DT1502 10/2010 s.66.29(7) Wis. Stats.

COUNTY	STATE PROJECT ID	FEDERAL PROJECT ID	PROJECT DESCRIPTION	HIGHWAY
Milwaukee	1060-33-73		Zoo IC - Swan Boulevard Local Street Watertown Plank Road to USH 45	Swan Blvd

This proposal, submitted by the undersigned bidder to the Wisconsin Department of Transportation, is in accordance with the advertised request for proposals. The bidder is to furnish and deliver all materials, and to perform all work for the improvement of the designated project in the time specified, in accordance with the appended Proposal Requirements and Conditions.

Proposal Guaranty Required, $ 320,000.00 Payable to: Wisconsin Department of Transportation	Attach Proposal Guaranty on back of this PAGE.
Bid Submittal Due Date: June 11, 2013 Time (Local Time): 9:00 AM	Firm Name, Address, City, State, Zip Code **SAMPLE** **NOT FOR BIDDING PURPOSES**
Contract Completion Time March 31, 2014	
Assigned Disadvantaged Business Enterprise Goal 0 %	This contract is exempt from federal oversight.

This certifies that the undersigned bidder, duly sworn, is an authorized representative of the firm named above; that the bidder has examined and carefully prepared the bid from the plans, Highway Work Proposal, and all addenda, and has checked the same in detail before submitting this proposal or bid; and that the bidder or agents, officer, or employees have not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with this proposal bid.

Do not sign, notarize, or submit this Highway Work Proposal when submitting an electronic bid on the Internet.

Subscribed and sworn to before me this date _____

(Signature, Notary Public, State of Wisconsin)

(Print or Type Name, Notary Public, State Wisconsin)

(Date Commission Expires)

Notary Seal

(Bidder Signature)

(Print or Type Bidder Name)

(Bidder Title)

For Department Use Only

Type of Work

Removals, excavation common, base aggregate, concrete pavement, HMA pavement, concrete barrier, concrete curb and gutter, concrete sidewalk, storm sewer, storm water ponds, hazardous material excavation, erosion control, traffic control, pavement marking, sign structures, permanent signing, street lighting, traffic signals, structures, retaining walls, restoration, streetscaping, and other incidental items.

Notice of Award Dated	Date Guaranty Returned

PLEASE ATTACH
PROPOSAL GUARANTY HERE

Effective with November 2007 Letting

PROPOSAL REQUIREMENTS AND CONDITIONS

The bidder, signing and submitting this proposal, agrees and declares as a condition thereof, to be bound by the following conditions and requirements.

If the bidder has a corporate relationship with the proposal design engineering company, the bidder declares that it did not obtain any facts, data, or other information related to this proposal from the design engineering company that was not available to all bidders.

The bidder declares that they have carefully examined the site of, and the proposal, plans, specifications and contract forms for the work contemplated, and it is assumed that the bidder has investigated and is satisfied as to the conditions to be encountered, as to the character, quality, and quantities of work to be performed and materials to be furnished, and as to the requirements of the specifications, special provisions and contract. It is mutually agreed that submission of a proposal shall be considered conclusive evidence that the bidder has made such examination.

The bidder submits herewith a proposal guaranty in proper form and amount payable to the party as designated in the advertisement inviting proposals, to be retained by and become the property of the owner of the work in the event the undersigned shall fail to execute the contract and contract bond and return the same to the office of the engineer within fourteen (14) days after having been notified in writing to do so; otherwise to be returned.

The bidder declares that they understand that the estimate of quantities in the attached schedule is approximate only and that the attached quantities may be greater or less in accordance with the specifications.

The bidder agrees to perform the said work, for and in consideration of the payment of the amount becoming due on account of work performed, according to the unit prices bid in the following schedule, and to accept such amounts in full payment of said work.

The bidder declares that all of the said work will be performed at their own proper cost and expense, that they will furnish all necessary materials, labor, tools, machinery, apparatus, and other means of construction in the manner provided in the applicable specifications and the approved plans for the work together with all standard and special designs that may be designed on such plans, and the special provisions in the contract of which this proposal will become a part, if and when accepted. The bidder further agrees that the applicable specifications and all plans and working drawings are made a part hereof, as fully and completely as if attached hereto.

The bidder, if awarded the contract, agrees to begin the work not later than ten (10) days after the date of written notification from the engineer to do so, unless otherwise stipulated in the special provisions.

The bidder declares that if they are awarded the contract, they will execute the contract agreement and begin and complete the work within the time named herein, and they will file a good and sufficient surety bond for the amount of the contract for performance and also for the full amount of the contract for payment.

The bidder, if awarded the contract, shall pay all claims as required by Section 779.14, Statutes of Wisconsin, and shall be subject to and discharge all liabilities for injuries pursuant to Chapter 102 of the Statutes of Wisconsin, and all acts amendatory thereto. They shall further be responsible for any damages to property or injury to persons occurring through their own negligence or that of their employees or agents, incident to the performance of work under this contract, pursuant to the Standard Specifications for Road and Bridge Construction applicable to this contract.

In connection with the performance of work under this contract, the contractor agrees to comply with all applicable state and federal statutes relating to non-discrimination in employment. No otherwise qualified person shall be excluded from employment or otherwise be subject to discrimination in employment in any manner on the basis of age, race, religion, color, gender, national origin or ancestry, disability, arrest or conviction record (in keeping with s.111.32), sexual orientation, marital status, membership in the military reserve, honesty testing, genetic testing, and outside use of lawful products. This provision shall include, but not be limited to the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation, and selection for training, including apprenticeship. The contractor further agrees to ensure equal opportunity in employment to all applicants and employees and to take affirmative action to attain a representative workforce.

The contractor agrees to post notices and posters setting forth the provisions of the nondiscrimination clause, in a conspicuous and easily accessible place, available for employees and applicants for employment.

If a state public official (section 19.42, Stats.) or an organization in which a state public official holds at least a 10% interest is a party to this agreement, this contract is voidable by the state unless appropriate disclosure is made to the State of Wisconsin Ethics Board.

Effective with August 2007 Letting

BID PREPARATION

Preparing the Proposal Schedule of Items

A General

(1) Obtain bidding proposals as specified in section 102 of the standard specifications prior to 11:45 AM of the last business day preceding the letting. Submit bidding proposals using one of the following methods:

1. Electronic bid on the internet.
2. Electronic bid on a printout with accompanying diskette or CD ROM.
3. Paper bid under a waiver of the electronic submittal requirements.

(2) Bids submitted on a printout with accompanying diskette or CD ROM or paper bids submitted under a waiver of the electronic submittal requirements govern over bids submitted on the internet.

(3) The department will provide bidding information through the department's web site at http://www.dot.wisconsin.gov/business/engrserv/bid-letting-information.htm. The contractor is responsible for reviewing this web site for general notices as well as information regarding proposals in each letting. The department will also post special notices of all addenda to each proposal through this web site no later than 4:00 P.M. local time on the Thursday before the letting. Check the department's web site after 5:00 P.M. local time on the Thursday before the letting to ensure all addenda have been accounted for before preparing the bid. When bidding using methods 1 and 2 above, check the Bid Express™ on-line bidding exchange at http://www.bidx.com/ after 5:00 P.M. local time on the Thursday before the letting to ensure that the latest schedule of items Expedite file (*.ebs or *.00x) is used to submit the final bid.

(4) Interested parties can subscribe to the Bid Express™ on-line bidding exchange by following the instructions provided at the www.bidx.com web site or by contacting:

Info Tech Inc.
5700 SW 34th Street, Suite 1235
Gainesville, FL 32608-5371
email: mailto:customer.support@bidx.com

(5) The department will address equipment and process failures, if the bidder can demonstrate that those failures were beyond their control.

(6) Contractors are responsible for checking on the issuance of addenda and for obtaining the addenda. Notice of issuance of addenda is posted on the department's web site at http://www.dot.wisconsin.gov/business/engrserv/bid-letting-information.htm or by calling the department at (608) 266-1631. Addenda can ONLY be obtained from the departments web site listed above or by picking up the addenda at the Bureau of Highway Construction, Room 601, 4802 Sheboygan Avenue, Madison, WI, during regular business hours.

B Submitting Electronic Bids

B.1 On the Internet

(1) Do the following before submitting the bid:

1. Have a properly executed annual bid bond on file with the department.
2. Have a digital ID on file with and enabled by Info Tech Inc. Using this digital ID will constitute the bidder's signature for proper execution of the bidding proposal.

(2) In lieu of preparing, delivering, and submitting the proposal as specified in 102.6 and 102.9 of the standard specifications, submit the proposal on the internet as follows:

1. Download the latest schedule of items reflecting all addenda from the Bid Express™ web site.
2. Use Expedite™ software to enter a unit price for every item in the schedule of items.
3. Submit the bid according to the requirements of Expedite™ software and the Bid Express™ web site. Do not submit a bid on a printout with accompanying diskette or CD ROM or a paper bid. If the bidder does submit a bid on a printout with accompanying diskette or a paper bid in addition to the internet submittal, the department will disregard the internet bid.
4. Submit the bid before the hour and date the Notice to Contractors designates.
5. Do not sign, notarize, and return the bidding proposal described in 102.2 of the standard specifications.

(3) The department will not consider the bid accepted until the hour and date the Notice to Contractors designates.

B.2 On a Printout with Accompanying Diskette or CD ROM

(1) Download the latest schedule of items from the Wisconsin pages of the Bid Express™ web site reflecting the latest addenda posted on the department's web site at **http://www.dot.wisconsin.gov/business/engrserv/bid-letting-information.htm**. Use Expedite ™ software to prepare and print the schedule of items. Provide a valid amount for all price fields. Follow instructions and review the help screens provided on the Bid Express™ web site to assure that the schedule of items is prepared properly.

(2) Staple an 8 1/2 by 11 inch printout of the Expedite™ generated schedule of items to the other proposal documents submitted to the department as a part of the bidder's sealed bid. As a separate submittal not in the sealed bid envelop but due at the same time and place as the sealed bid, also provide the Expedite™ generated schedule of items on a 3 1/2 inch computer diskette or CD ROM. Label each diskette or CD ROM with the bidder's name, the 4 character department-assigned bidder identification code from the top of the bidding proposal, and a list of the proposal numbers included on that diskette or CD ROM as indicated in the following example:

Bidder Name

BN00

Proposals: 1, 12, 14, & 22

(3) If bidding on more than one proposal in the letting, the bidder may include all proposals for that letting on one diskette or CD ROM. Include only submitted proposals with no incomplete or other files on the diskette or CD ROM.

(4) The bidder-submitted printout of the Expedite™ generated schedule of items is the governing contract document and must conform to the requirements of section 102 of the standard specifications. If a printout needs to be altered, cross out the printed information with ink or typewriter and enter the new information and initial it in ink. If there is a discrepancy between the printout and the diskette or CD ROM, the department will analyze the bid using the printout information.

(5) In addition to the reasons specified in section 102 of the standard specifications, proposals are irregular and the department may reject them for one or more of the following:

1. The check code printed on the bottom of the printout of the Expedite™ generated schedule of items is not the same on each page.
2. The check code printed on the printout of the Expedite™ generated schedule of items is not the same as the check code for that proposal provided on the diskette or CD ROM.

3. The diskette or CD ROM is not submitted at the time and place the department designates.

C Waiver of Electronic Submittal

(1) The bidder may request a waiver of the electronic submittal requirements. Submit a written request for a waiver in lieu of bids submitted on the internet or on a printout with accompanying diskette or CD ROM. Use the waiver that was included with the paper bid document sent to the bidder or type up a waiver on the bidder's letterhead. The department will waive the electronic submittal requirements for a bidding entity (individual, partnership, joint venture, corporation, or limited liability company) for up to 4 individual proposals in a calendar year. The department may allow additional waivers for equipment malfunctions.

(2) Submit a schedule of items on paper conforming to section 102 of the standard specifications. The department charges the bidder a $75 administrative fee per proposal, payable at the time and place the department designates for receiving bids, to cover the costs of data entry. The department will accept a check or money order payable to: "Wisconsin, Dept. of Transportation."

(3) In addition to the reasons specified in section 102 of the standard specifications, proposals are irregular and the department may reject them for one or more of the following:

1. The bidder fails to provide the written request for waiver of the electronic submittal requirements.
2. The bidder fails to pay the $75 administrative fee before the time the department designates for the opening of bids unless the bidder requests on the waiver that they be billed for the $75.
3. The bidder exceeds 4 waivers of electronic submittal requirements within a calendar year.

(4) In addition to the reasons specified in section 102 of the standard specifications, the department may refuse to issue bidding proposals for future contracts to a bidding entity that owes the department administrative fees for a waiver of electronic submittal requirements.

PROPOSAL BID BOND

Wisconsin Department of Transportation

DT1303 1/2006

Proposal Number	Project Number	Letting Date
Name of Principal		
Name of Surety	State in Which Surety is Organized	

We, the above-named Principal and the above-named Surety, are held and firmly bound unto the State of Wisconsin in the sum equal to the Proposal Guaranty for the total bid submitted for the payment to be made; we jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns. The condition of this obligation is that the Principal has submitted a bid proposal to the State of Wisconsin acting through the Department of Transportation for the improvement designated by the Proposal Number and Letting Date indicated above.

If the Principal is awarded the contract and, within the time and manner required by law after the prescribed forms are presented for signature, enters into a written contract in accordance with the bid, and files the bond with the Department of Transportation to guarantee faithful performance and payment for labor and materials, as required by law, or if the Department of Transportation shall reject all bids for the work described, then this obligation shall be null and void; otherwise, it shall be and remain in full force and effect. In the event of failure of the Principal to enter into the contract or give the specified bond, the Principal shall pay to the Department of Transportation **within 10 business days of demand** a total equal to the Proposal Guaranty as liquidated damages; the liability of the Surety continues for the full amount of the obligation as stated until the obligation is paid in full.

The Surety, for value received, agrees that the obligations of it and its bond shall not be impaired or affected by any extension of time within which the Department of Transportation may accept the bid; and the Surety does waive notice of any such extension.

IN WITNESS, the Principal and Surety have agreed and have signed by their proper officers and have caused their corporate seals to be affixed this date: **(DATE MUST BE ENTERED)**

PRINCIPAL

(Company Name) **(Affix Corporate Seal)**

(Signature and Title)

(Company Name)

(Signature and Title)

(Company Name)

(Signature and Title)

(Company Name)

(Signature and Title)

(Name of Surety) **(Affix Seal)**

(Signature of Attorney-in-Fact)

NOTARY FOR PRINCIPAL

(Date)

State of Wisconsin)
) ss.
_____ County)

On the above date, this instrument was acknowledged before me by the named person(s).

(Signature, Notary Public, State of Wisconsin)

(Print or Type Name, Notary Public, State of Wisconsin)

(Date Commission Expires)

Notary Seal

NOTARY FOR SURETY

(Date)

State of Wisconsin)
) ss.
_____ County)

On the above date, this instrument was acknowledged before me by the named person(s).

(Signature, Notary Public, State of Wisconsin)

(Print or Type Name, Notary Public, State of Wisconsin)

(Date Commission Expires)

Notary Seal

IMPORTANT: A certified copy of Power of Attorney of the signatory agent must be attached to the bid bond.

CERTIFICATE OF ANNUAL BID BOND

Wisconsin Department of Transportation

DT1305 8/2003

Time Period Valid (From/To)
Name of Surety
Name of Contractor
Certificate Holder Wisconsin Department of Transportation

This is to certify that an annual bid bond issued by the above-named Surety is currently on file with the Wisconsin Department of Transportation.

This certificate is issued as a matter of information and conveys no rights upon the certificate holder and does not amend, extend or alter the coverage of the annual bid bond.

Cancellation: Should the above policy be cancelled before the expiration date, the issuing surety will give thirty (30) days written notice to the certificate holder indicated above.

(Signature of Authorized Contractor Representative) (Date)

FEBRUARY 1999

LIST OF SUBCONTRACTORS

Section 66.29(7), Wisconsin Statutes, provides that a bidder, as a part of his proposal, shall submit a list of the subcontractors he proposes to contract with and the class of work to be performed by each, provided that to qualify for such listing each subcontractor must first submit his bid in writing to the general contractor at least 48 hours prior to the time of bid closing. It further provides that a proposal of a bidder shall not be invalid if any subcontractor, and the class of work to be performed by such subcontractor, has been omitted from a proposal.

No subcontract, whether listed herein or later proposed, may be entered into without the written consent of the Engineer as provided in Subsection 108.1 of the Standard Specifications.

Name of Subcontractor	Class of Work	Estimated Value
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

DECEMBER 2000

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS - PRIMARY COVERED TRANSACTIONS

Instructions for Certification

1. By signing and submitting this proposal, the prospective contractor is providing the certification set out below.

2. The inability of a person to provide the certification required below will not necessarily result in denial of participation in this covered transaction. The prospective contractor shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective contractor to furnish a certification or an explanation shall disqualify such person from participation in this transaction.

3. The certification in this clause is a material representation of fact upon which reliance was placed when the department determined to enter into this transaction. If it is later determined that the contractor knowingly rendered an erroneous certification in addition to other remedies available to the Federal Government the department may terminate this transaction for cause or default.

4. The prospective contractor shall provide immediate written notice to the department to whom this proposal is submitted if at any time the prospective contractor learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

5. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549. You may contact the department to which this proposal is being submitted for assistance in obtaining a copy of those regulations.

6. The prospective contractor agrees by submitting this proposal that, should this contract be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department entering into this transaction.

7. The prospective contractor further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," which is included as an addendum to PR-1273 - "Required Contract Provisions Federal Aid Construction Contracts," without

modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

8. The contractor may rely upon a certification of a prospective subcontractor/materials supplier that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A contractor may decide the method and frequency by which it determines the eligibility of its principals. Each contractor may, but is not required to, check the Disapproval List (telephone # 608/266/1631).

9. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

10. Except for transactions authorized under paragraph 6 of these instructions, if a contractor in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department may terminate this transaction for cause or default.

Certification Regarding Debarment, Suspension, and Other Responsibility Matters - Primary Covered Transactions

(1) The prospective contractor certifies to the best of its knowledge and belief, that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offense enumerated in paragraph (1)(b) of this certification; and

(d) Have not within a three-year period preceding this proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

(2) Where the prospective contractor is unable to certify to any of the statements in this certification, such prospective contractor shall attach an explanation to this proposal.

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SPECIAL PROVISIONS

1. General.

Perform the work under this construction contract for Project 1060-33-73, Zoo IC- Swan Boulevard, Local Street, from Watertown Plank Road to USH 45, Milwaukee County, Wisconsin as the plans show and execute the work as specified in the State of Wisconsin, Department of Transportation, Standard Specifications for Highway and Structure Construction, 2013 Edition, as published by the department, and these special provisions.

If all or a portion of the plans and special provisions are developed in the SI metric system and the schedule of prices is developed in the US standard measure system, the department will pay for the work as bid in the US standard system.
100-005 (20120615)

2. Scope of Work.

The work under this contract shall consist of removals, grading, base, concrete pavement, concrete barrier, asphaltic surface, storm sewer, erosion control, pond grading, permanent signing, traffic control, pavement marking, lighting, structures, restoration and all incidental items necessary to complete the work as shown on the plans and included in the proposal and contract.
104-005 (20090901)

3. Prosecution and Progress.

Begin work within ten calendar days after the engineer issues a written notice to do so.

Provide the start date to the engineer in writing within a month after executing the contract but at least 14 calendar days before the preconstruction conference. Upon approval, the engineer will issue the notice to proceed within ten calendar days before the approved start date.

To revise the start date, submit a written request to the engineer at least two weeks before the intended start date. The engineer will approve or deny that request based on the conditions cited in the request and its effect on the department's scheduled resources.

Be advised that there may be multiple mobilizations and/or remobilizations to complete construction operations, for example such items as: concrete pavement repair/replacement, paving, traffic control, signing, pavement marking, finishing items and other incidental items. No additional payment will be made, by the department, for additional mobilizations.

Anticipate cold weather and late fall concrete paving and ancillary concrete work (curb, median, etc). Plan to heat aggregates and water for mixes, and that the heating of the aggregate and water is considered incidental to those concrete items. There will be no adverse weather delay for cold weather construction.

The contract time for completion is based on an expedited work schedule and may require extraordinary forces and equipment.

A Schedule of Operations
Traffic shifts shown in a given stage may occur at different times during that stage depending on the controlling elements for a given traffic movement. The department anticipates that the schedule for each stage shall be as follows:

Anticipated schedule:

Stage 1: August 5, 2013 to October 25, 2013
Stage 2: October 26, 2013 to December 1, 2013
Stage 3: December 2, 2013 to December 20, 2013

Stage 1 Traffic:

USH 45:

- Shift northbound and southbound USH 45 traffic to outside lanes at Swan Boulevard using the freeway shoulders.
- Full Freeway closure during Night time closure hours for girder erection at Structure B-40-775.
- Night time lane closures for pavement repair.

Swan Boulevard:

- Maintain traffic along northbound and southbound Swan Boulevard with the exception of one weekday off-peak hour closure for storm sewer construction along southbound Swan Boulevard, east of USH 45.

Underwood Parkway

- Maintain traffic along Underwood Parkway at all times, with the exception of a 48-hour closure for storm sewer construction during weekdays.

Stage 1 Construction:

USH 45:

- Construct shoulder and joint repairs along USH 45.
- Construct northern portion of retaining wall R-40-484.

Swan Boulevard:

- Building demolition of the former Greenhouse Buildings and Salt sheds.
- Weekday off-peak hour storm sewer construction of P500. Place temporary pavement.
- Construct bridge Structure B-40-775.
- Construct temporary shoring at B-40-775 adjacent to southbound Swan Boulevard.
- Construct retaining wall R-40-485.
- Construct roadway embankment west of USH 45.
- Construct storm sewer.

Underwood Parkway:

- Construct storm sewer crossing for pipe P272. Place temporary pavement.

Watertown Plank Road

- Construct temporary traffic signal at the intersection of Discovery Parkway and Watertown Plank Road.

Wisconsin Lutheran College Pond

- Complete grading and erosion control for Wisconsin Lutheran College Pond.

Stage 2 Traffic:

USH 45:

- Restore USH 45 to original lane configuration upon completion of median work.
- Full Freeway closure during Night time closure hours for bridge demolition at Structure B-40-134.

Swan Boulevard:

- Close northbound and southbound Swan Boulevard between Discovery Parkway and Watertown Plank Road.

Stage 2 Construction:

USH 45:

- Construct southern portion of R-40-484 and remove temporary shoring.

Swan Boulevard:

- Remove existing bridge Structure B-40-134.
- Finish construction of bridge Structure B-40-775.
- Finish construction of retaining wall R-40-485
- Construct roadway embankment and pavement east of USH 45
- Construct roadway pavement west of USH 45
- Install overhead sign Structure S-40-638

Shared Use Path:

- Construct new Shared Use Path connection from the Oak Leaf Trail to Underwood Parkway.

Stage 3 Traffic:

Swan Boulevard:

- Open Swan Boulevard
- Open Wisconsin Lutheran College Access Road
- Close Underwood Parkway at Watertown Plank Rd after Wisconsin Lutheran College Access Road has been opened
- Maintain access to private entrance off of the roundabout.

Stage 3 Construction:

Swan Boulevard:

- Construct new connection to Underwood Parkway
- Construct private entrance to 1200 N Mayfair Road.

Post Construction:

W. Watertown Plank Road

- Maintain temporary traffic signal at the intersection of Discovery Parkway and Watertown Plank Road until March 31, 2014.

Traffic Control Deficiency Response Time Penalty

Supplement standard spec 643.3.2(8) with the following:

Upon receiving written notification from the engineer, clean, repair or replace traffic control devices not performing as intended to the satisfaction of the engineer within 12 hours. Failure to clean, repair or replace required traffic control within the time limits specified above will result in daily monetary deductions of $500 for each 24-hour period

(or portion thereof starting 12 hours after time of notification) in which the traffic control deficiency exists.

Contractor Coordination
Attend weekly scheduling meetings to discuss the near term schedule activities, address any long-term schedule issues, and discuss any relevant technical issues. Develop a rolling three-week schedule identifying the previous week worked and a two week "look ahead". Provide sufficient detail to include actual and planned activities and all the subcontractors for offsite and construction activities, addressing all activities including ramp and lane closure schedules to be performed and identifying issues requiring engineering action or input. Submit plans for all traffic control for review by the engineer and approval a minimum of one week prior to implementation.

Advance Notification
Notify the engineer and WisDOT SE Region Work Zone Engineer, (262) 548-6730, if there are any changes in the schedule, early completions, or cancellations of scheduled work. Coordinate the locations of messages of portable changeable message sign with the engineer and WisDOT STOC, (414) 227-2142. Notify WisDOT Signal Operations, (414) 750-2605, and WisDOT Electrical Field Unit, (414) 266-1170, regarding changes for alternate routes and detours.

Provide the engineer with a schedule of lane and ramp closures for the following week by noon on Thursday of the previous week. In addition, provide the following minimum advance notification to the engineer for incorporation into the Wisconsin Lane Closure System.

Ramp Closures	3 business days
System Ramp Closures	7 calendar days
Lane Closures	3 business days
Full Freeway Closures	14 calendar days
Construction Stage Changes	14 calendar days
Detours	14 calendar days

Definitions – Freeway Work Restrictions
The following definitions apply to this contract for freeway work restrictions:

Weekday Peak Hours

5:30 AM – 8:00 PM	Monday, Tuesday, Wednesday, Thursday
5:30 AM – 11:00 PM	Friday

Weekend Peak Hours

7:30 AM – 7:00 PM	Saturday, Sunday

Weekend Off-Peak Hours

7:00 PM – 11:00 PM	Saturday
7:00 PM – 9:30 PM	Sunday

Weekday Off-Peak Hours

8:00 PM – 9:30 PM	Monday, Tuesday, Wednesday, Thursday

Night Time Hours

9:30 PM – 5:30 AM	(Sunday PM to Monday AM, Monday PM to Tuesday AM, Tuesday PM to Wednesday AM, Wednesday PM to Thursday AM, Thursday PM to Friday AM)
11:00 PM – 7:30 AM	(Friday PM to Saturday AM, Saturday PM to Sunday AM)

Full Freeway Closure/Hours

11:00 PM – 4:30 AM	(Sunday PM to Monday AM, Monday PM to Tuesday AM, Tuesday PM to Wednesday AM, Wednesday PM to Thursday AM, Thursday PM to Friday AM)

Freeway Work Restrictions

No weekday off-peak two-lane closures are allowed. No weekday peak hour lane closures are allowed.

Provide a minimum of three lanes in each direction of the freeways and ensure that the freeways are entirely clear for traffic during Weekday Peak Hours, Weekend Peak Hours, and during Weekday Off-Peak Hours, except as shown in the traffic control plans. Provide a minimum of two lanes in each direction of the freeways and ensure that the freeways are entirely clear for traffic during Weekend Off-Peak Hours. Provide a minimum of one lane in each direction of the freeway and ensure that the freeways are entirely clear for traffic during Night Time Hours except as allowed during full closure. The Wisconsin Avenue Southbound on ramp to USH 45 may be closed during Night Time closure hours to facilitate site excavation.

Full closure and detouring of freeway roads will be restricted to Full Freeway Closure Hours. The freeway may be closed to facilitate the removal of structures and erection of girders and to perform work related to major traffic shifts. Provide signed detour routes, as shown in the plans that are fully open and free of construction during all full freeway and system ramp closures.

Definitions – Local Street Work Restrictions

The following definitions apply to this contract for local street work restrictions:

Peak Hours

6:00 AM – 9:00 PM	Monday, Tuesday, Wednesday, Thursday
6:00 AM – 9:00 PM	Friday
11:00 AM – 8:00 PM	Saturday
1:00 PM – 5:00 PM	Sunday

Off-Peak Hours

9:00 PM – 6:00 AM	Monday, Tuesday, Wednesday, Thursday
9:00 PM – 11:00 AM	Friday PM to Saturday AM
8:00 PM – 1:00 PM	Saturday PM to Sunday PM
5:00 PM – 6:00 AM	Sunday PM to Monday AM

Local Street Work Restrictions

At least two lanes shall be available to traffic during the Peak Hours unless approved by the engineer. One lane may be available to traffic during Off-Peak Hours only.

Existing lanes along Swan Boulevard will be available to traffic during Stage 1 construction with the exception of a weekday off-peak hour closure, unless approved by the engineer. Make existing lanes of traffic along Underwood Parkway available to traffic, with the exception of a 48 hour closure for storm sewer construction. Keep Underwood Parkway open until the completion of the Wisconsin Lutheran College Access road and Swan Boulevard, unless approved by the engineer. Maintain pedestrian and bicycle access to the Oak Leaf Trail off Underwood Parkway throughout construction operations.

Comply with all local ordinances that apply to local street work operations, including those pertaining to working during night time hours. Furnish any ordinance variance issued by the municipality or required permits to the engineer in writing three days prior to performing such work.

Existing trees, street light poles, hydrants and other utility poles are to remain in place during construction unless otherwise noted in the plan. Conduct an on-site visit prior to bidding to determine any special measures required for proper clearance between the trees, hydrants and poles and the paving equipment.

All Work Restrictions

Comply with the noise level restrictions as defined in the article Public Convenience and Safety.

When engaged in roadway cleaning operations, use equipment having vacuum or water spray mechanisms to eliminate the dispersion of particulate matter into the atmosphere. If vacuum equipment is employed, it must have suitable self-contained particulate collectors to prevent discharge from the collection bin into the atmosphere.

Excavation material and cleared and grubbed material shall be stockpiled on upland areas an adequate distance away from wetlands, storm sewer inlets, floodplains, and the waterways as determined by engineer.

After written notice to proceed, and prior to Final Acceptance of the work, assist with maintenance of existing roadways and bridges as specified in standard spec 104.6.1. This assistance may include performance of work covered under pay items or accommodating local repair forces within the work zones. Maintain all newly constructed work as

specified in standard spec 104.6.1. Various pay items may be required to maintain the freeway and local streets during construction. Milwaukee County will perform snow removal operations for freeway and ramp lanes that are open to traffic. The City of Wauwatosa will perform snow removal operations for local streets that are open to traffic. Provide for snow removal in those areas closed to traffic. Provide Milwaukee County Highway Maintenance, Milwaukee County Sheriff's Department and Wauwatosa Police Department with a 24-hour emergency contact number for when maintenance is required.

Interim Completion of Work
Complete all construction operations and open all roadways on this project to traffic prior to 12:01 AM December 21, 2013. Do not reopen until completing all construction work except for maintenance and repairs of the temporary traffic signal at the intersection of Watertown Plank Road and Discovery Parkway.

Supplement standard spec 108.11 as follows:

If the contractor fails to complete all construction operations and to reopen all roadways on this project to through traffic prior to 12:01 AM December 21, 2013, the department will assess the contractor $15,000 in interim liquidated damages for each calendar day that any roadway remains closed after 12:01 AM, December 21, 2013. An entire calendar day will be charged for any period of time within a calendar day that any road remains closed beyond 12:01 AM.

Wisconsin Lutheran Pond
Complete all grading operations and Erosion Control measures outlined in the plan for the Wisconsin Lutheran Pond prior to the beginning of Stage 2 construction.

Temporary Traffic Signal
Complete the installation of the temporary traffic signal at W. Watertown Plank Road and Discovery Parkway, and begin signal operation prior to the closure of Swan Boulevard in Stage 2 construction.

Water Main
Cut and cap the Milwaukee County water main at Station 183BV+99 and Station 184BV+16 as shown in the plans prior to the construction of B-40-775, the demolition of existing B-40-134 or construction of R-40-485 foundations.

Both the department and the City of Wauwatosa Water Utility staff will inspect construction water main under this contract. However, it is the responsibility of the contractor to pressure test the water main and obtain two consecutive safe water samples 24 hours apart before connecting services or the second water main connection. Contractor is responsible for any notifications required for water main construction. Final acceptance of the water main construction will be by the City of Wauwatosa.

An existing Milwaukee County water main crossing Swan Boulevard at Station 183BV+51 provides water service to Wisconsin Lutheran College (WLC). Upon completion of the new City of Wauwatosa water main along Swan Boulevard as shown in the plans and satisfactory testing thereof, cut and cap the County water main as shown in the plans and connect the new water main to the WLC service. Contact Thomas Travia, (414) 257-6418 office / (414) 339-0408 cell, of Milwaukee County and Jim Wojechowicz, (414) 479-8965, of the Wauwatosa Water Utility three days in advance to coordinate connection of the WLC service.

4. Traffic.

Perform the work under this contract in a manner that will interfere as little as possible with active traffic on local streets. Do not park or store vehicles, equipment, or materials on City of Wauwatosa streets adjacent to active traffic or within the clear zone except at the time of performance of the work. Materials or equipment may be stored within the right-of-way only at locations meeting the approval of the engineer.

At all times maintain access to businesses and residents on the existing local streets within the project work area. Do not close or remove driveway approaches or parking stalls from service without a five day notice given to the occupants of the premises to remove their vehicles prior to driveway removal or closing of the driveway approach access.

Coordinate traffic requirements under this contract with other ongoing department construction projects. This contractor shall be responsible for implementing and coordinating with other contractors all traffic control as shown on the plans.

Stage 1
Existing Swan Boulevard, Underwood Parkway, and USH 45 are open to traffic during Stage 1. Shift traffic on mainline USH 45 to the outside shoulders for median bridge pier construction. Maintain 4 lanes of northbound traffic and 3 lanes of southbound traffic on the freeway and keep all Watertown Plank Rd/Swan Boulevard entrance and exit ramps open.

Stage 2
Maintain access at Underwood Parkway, and restore traffic on USH 45 to original configuration once the bridge demo and construction are complete. Close Swan Boulevard.

Detour Route: Swan Boulevard Closure
Traffic on southbound Swan Boulevard will be directed south on Discovery Parkway, and then onto westbound Watertown Plank Road to the USH 45 interchange. Traffic attempting to access northbound Swan Boulevard will be directed eastbound on Watertown Plank Road, and then north on Discovery Parkway reconnecting with Swan Boulevard.

Detour Route: USH 45 Full Freeway Closure
Traffic on northbound USH 45 will be directed off the freeway at the Watertown Plank Road/Swan Boulevard exit ramp. Traffic will be directed westbound along Watertown Plank Road, then northbound to STH 100. Traffic will then be directed westbound along North Avenue and back onto USH 45 at the North Avenue entrance ramp. Traffic on southbound USH 45 will be directed off the freeway at the North Avenue exit ramp and then east along North Avenue. Traffic will then be directed southbound along STH 100 and then eastbound at Watertown Plank Road. Traffic will use the Watertown Plank Road entrance ramp onto southbound USH 45 to re-enter the freeway.

Stage 3
Swan Boulevard open to traffic. Open Wisconsin Lutheran College access road and close Underwood Parkway. Maintain access to Wangard business plaza from the roundabout. USH 45 traffic remains original configuration.

5. Holiday and Special Event Work Restrictions.

Do not perform work on, nor haul materials of any kind along or across any portion of the highway carrying USH 45 traffic, and entirely clear the traveled way and shoulders of such portions of the highway of equipment, barricades, signs, lights, and any other material that might impede the free flow of traffic during the following holiday periods:

- From noon Thursday, August 29, 2013 to 6:00 AM Tuesday, September 3, 2013 for Labor Day extended to include Harley Fest 110th Anniversary;
- From noon Wednesday, November 27, 2013 to 6:00 AM Monday, December 2, 2013
- On days with a Milwaukee Brewer home game at Miller Park from three hours prior to the start of a game until two hours after the end of a game.
- On weekend days during major Zoo events until two hours after the end of an event:
  - Zoo a la Carte, Saturday, August 17, 2013 to Sunday, August 18, 2013
  - Family Free day Saturday, November 2, 2013 and Saturday, December 7, 2013;
- On Green Bay Packer home game at Lambeau Field for Gold Package games or night games against the Chicago Bears from 3 hours prior to the start of a game until two hours after the end of a game.

107-005 (20050502)

6. Utilities.

This contract comes under the provisions of Administrative Rule TRANS 220.

Additional information regarding recently relocated utility facilities may be available on permits issued to the utility companies. These permits can be viewed at the Region Office during normal working hours. Contact WisDOT SE Freeways Utility Coordinator Maria Rojas at (414) 750-4362 for further information.

Underground and overhead utility facilities are located within the project limits. Utility adjustments are required for this construction project as noted below. Coordinate construction activities with a call to Diggers Hotline or a direct call to the utilities that have facilities in the area as required per state statute. Use caution to ensure the integrity of underground facilities and maintain code clearances from overhead facilities at all times.

Some utility work, as described below, is dependent on prior work being performed by the contractor at a specific site. Provide the engineer and the affected utility a good faith notice of when the utility is to start work at the site. Notice shall be given 14 to 16 calendar days in advance of when the site will be available to the utility. Follow up with a confirmation notice to the engineer and the utility not less than 3 working days before the site will be ready for the utility to begin its work.

Contact utility companies listed in the plans prior to preparing bids to obtain current information on existing utility locations and the status of any new utility relocation work.

Utility companies will be performing utility work and adjustments within the limits and during the life of the project. The contractor shall cooperate and coordinate construction activities with these companies.

There may be abandoned utility facilities within the project limits. If a conflict with an abandoned utility facility is encountered, contact the appropriate utility owner/representative to coordinate construction activities and proper removal and disposal of said facility as necessary.

Utility working days shown herein are as defined in Wisconsin Administrative Code Chapter Trans 220.

Known utilities in the projects are as follows:

AT&T Wisconsin has overhead and underground communication facilities within the project limits in the following locations:

- An underground communications line beginning at a We Energies pole at Station 7XFN+44, 41’LT and running southeasterly, crossing WLC Access Road at Station 8XFN+46, and continuing southeasterly to the east side of WLC Access Road to Station 9XFN+08, 31’RT where it turns and runs northerly, crossing WLC Access Road at Station 9XFN+34, and continuing northerly to beyond the northerly project limits. AT&T Wisconsin will lower this line at Station 9XFN+34 prior to construction. The remaining portions of this line will remain in place without adjustment.

- An underground communications line beginning at a We Energies pole at Station 7XFN+44, 41'LT and running southeasterly, crossing WLC Access Road at Station 8XFN+75, and continuing southeasterly, crossing Swan Boulevard at Station 174BV+78, and continuing southeasterly to beyond the easterly project limits. AT&T Wisconsin will abandon this line in place prior to construction.
- An overhead communications line beginning beyond the easterly project limits and running westerly to a pole at Station 188BV+88, 102'RT. From there the line runs underground northwesterly, crossing Swan Boulevard at Station 188BV+70, and continues northwesterly to a pedestal at Station 188BV+47, 96'LT. From there it turns and runs northwesterly to Station 188BV+12, 128'LT where it turns and runs northerly to beyond the northerly project limits. AT&T Wisconsin will abandon the underground line in place and will remove the pedestal and pole at Station 188BV+88, 102'RT prior to construction.

AT&T Wisconsin will relocate, construct and reconstruct underground and overhead electric facilities in the project area in the following locations prior to construction:

- A new underground communications line beginning at a We Energies pole at Station 7XFN+44, 41'LT and running southeasterly, crossing WLC Access Road at approximately Station 8XFN+72, and continuing southeasterly, crossing Swan Boulevard at approximately Station 174BV+75, and continuing southeasterly to beyond the easterly project limits.
- A new pole placed at the easterly right-of-way of Swan Boulevard at Station 189BV+66, 153'RT.
- A new underground communications line beginning at a pole at Station 189BV+66, 153'RT and running northeasterly and easterly along the southerly right-of-way line of Swan Boulevard to a We Energies pole at Station 191BV+42, 71'RT. From there the line runs easterly overhead on We Energies poles to beyond the easterly project limits.
- A new underground communications line beginning at a We Energies pole at Station 196BV+21, 64'RT and running easterly to Station 197BV+50, 63'RT. From there it turns and runs northerly, in a joint trench with We Energies electric facilities, crossing Swan Boulevard at Station 197BV+50, and continuing northerly to Station 197BV+50, 37'LT. From there it turns and runs westerly along the northerly right-of-way of Swan Boulevard to Station 188BV+11, 134'LT where it connects into an existing communications line.

Contact Mark Szymanski (414-535-7417 office/ 414-491-2853 cell) of AT&T Wisconsin 7 days in advance to coordinate locations and any excavation near their facilities.

Milwaukee, City of – Sewer has a sanitary sewer beginning at a manhole in 95th Street and running westerly, crossing USH 45 at Station 329NS+75, to a manhole at Station 329NS+66, 94'LT where it turns and runs northerly to beyond the grading limits south of Wisconsin Avenue. This line will remain in place without adjustment.

Contact Joshua Rodomski of the City of Milwaukee – Sewers, (414) 286-0506 office, 7 days in advance to coordinate locations and any excavation near their facilities.

Milwaukee, County – Electrical and Communications has underground electrical and communication facilities within the project limits in the following locations:

- An underground communications line beginning beyond the southerly project limits and running northerly along the east side of the County Public Works garage to Station 777WD+59, 196'LT where it turns and runs westerly into the County greenhouse facilities. Milwaukee County will abandon this line in place prior to construction.
- An underground communications line beginning at Station 180BV+08, 125'RT and running northeasterly, between the County boiler building and the County Forestry building and continues northeasterly and ends at a pedestal at 182BV+42, 2'RT. Milwaukee County will abandon this line in place prior to construction.
- An underground communications line beginning from beyond the southerly project limits running northerly along the west side of the County Public Works garage to Station 180BV+59, 110'RT where it turns and runs easterly to Station 180BV+80, 153'RT. From there it turns and runs northerly into the County Forestry building. Milwaukee County will abandon this line in place prior to construction.
- An underground electric line beginning at the County boiler building at Station 181BV+20, 83'RT and running westerly to the County greenhouse facilities. Milwaukee County will abandon this line in place prior to construction.

Contact John Bieganski (414-257-7072) of Milwaukee County - Electric 7 days in advance to coordinate locations and any excavation near their facilities.

Contact Francis Bleecker (414-807-1759) of Milwaukee County - Communications 7 days in advance to coordinate locations and any excavation near their facilities.

Milwaukee, County – Sanitary has underground sanitary facilities within the project limits in the following locations:

- An underground sanitary sewer along the north side of Watertown Plank Road, beginning beyond the easterly project limits and running westerly, crossing Swan Boulevard at Station 167BV+01, and continuing westerly to beyond the westerly project limits. This line will remain in place without adjustment.
- An underground sanitary sewer beginning beyond the southerly project limits and running northerly along the east side of the County Public Works garage to a manhole at Station 776WD+06, 106'LT where it runs northwesterly to a manhole at Station 777WD+73, 226'LT. From there it runs northerly to a manhole at Station 184BV+23, 34'RT where it turns and runs northwesterly to a manhole at Station 184BV+02, 143'LT. From there it turns and runs westerly to beyond the westerly project limits. This sanitary sewer will be abandoned in place between Station 184BV+02, 143'LT and Station 183BV+94, 83'RT prior to construction. Prior to construction, a new sanitary sewer in a casing pipe across Swan Boulevard will be constructed between a new manhole at Station 183BV+94, 83'RT and the existing manhole at Station 184BV+02, 143'LT.

- An underground sanitary sewer beginning at a manhole at Station 180BV+28, 42'LT running easterly to Station 180BV+85, 65'RT where it turns and runs northerly to a manhole at Station 181BV+51, 28'RT where it turns and runs easterly to the County Forestry building. Abandon this sewer as shown in the plans.
- An underground sanitary sewer beginning at a manhole at Station 16XFN+08, 312'LT and running southerly to a manhole at Station 13XFN+64, 173'LT where it turns and runs easterly to the County greenhouse facilities. Abandon this sewer as shown in the plans.

Contact Thomas Travia (414-257-6418 office/ 414-339-0408 cell) of Milwaukee County 7 days in advance to coordinate locations and any excavation near their facilities.

Milwaukee, County – Water has underground water main facilities within the project limits in the following locations:

- An underground water main beginning beyond the southerly project limits and running northerly along the east side of the County Public Works garage to Station 776WD+43, 144'LT where it turns and runs northwesterly to Station 777WD+47, 220'LT. From there it turns and runs northerly to Station 184BV+07, 82'RT where it continues northerly to Station 184BV+97, 58'LT. From there it turns and runs southeasterly, crossing Swan Boulevard at Station 185BV+55 and crossing USH 45 at Station 381NS+67, and continues southeasterly to beyond the easterly project limits. Abandon, remove, leave in place, cut and cap the water main as shown in the plans.
- An underground water main beginning at an existing water vault at Station 183BV+21, 33'LT running southeasterly to Station 184BV+07, 82'RT. Abandon, remove, leave in place, cut and cap the water main as shown in the plans.
- An underground water main beginning at Station 184BV+14, 68'RT running southwesterly to Station 183BV+55, 66'RT where it turns and runs northwesterly, crossing Swan Boulevard at Station 183BV+51, and continuing northwesterly to Station 183BV+49, 52'LT. From there it turns and runs northerly to Station 183BV+67, 73'LT where it turns and runs northwesterly to beyond the northerly project limits. This line will remain in place without adjustment.
- An underground water main beginning at an existing water vault at Station 183BV+21, 33'LT and running westerly, crossing WLC Access Road at Station 17XFN+86, and continuing westerly to Station 16XFN+71, 156'LT where it turns and runs south to the County greenhouse facilities. Abandon, remove, and leave in place the water main as shown in the plans.
- An underground water main beginning at an existing water vault at Station 183BV+21, 33'LT and running southerly to Station 181BV+46, 91'LT where it turns and runs easterly to Station 181BV+65, 120'RT. From there it turns and runs southerly to Station 180BV+48, 186'RT where it turns and runs westerly to Station 179BV+83, 122'RT. From there it turns and runs southerly to beyond the southerly project limits. Abandon, remove, and leave in place the water main as shown in the plans.

- An underground water main beginning beyond the easterly project limits and running westerly, crossing Swan Boulevard at Station 176BV+16 and WLC Access Road at Station 10XFN+51, and continuing westerly to Station 10XFN+21, 67'LT where it turns and runs northerly to beyond the northerly project limits. Abandon, remove, and leave in place the water main as shown in the plans.
- An underground water main beginning at Station 773WD+85, 203'LT and running westerly along the north side of the County Public Works garage to Station 228UDE+70, 26'LT where it turns and runs southerly to beyond the southerly project limits. This line will remain in place without adjustment.

Milwaukee County - Water also has existing hydrants in the project limits. Salvage these hydrants as shown in the plans. Contact Thomas Travia, (414) 257-6418 office / (414) 339-0408 cell, of Milwaukee County 3 days in advance to coordinate a drop off location for these hydrants in the County Public Works yard.

Milwaukee County also has abandoned water mains within the project limits in the following locations:

- A water main beginning at Station 184BV+26, 49'RT and running westerly to Station 183BV+73, 20'RT where it turns and runs northwesterly, crossing Swan Boulevard at Station 183BV+73, and continues northwesterly to Station 183BV+69, 75'LT.
- A water main beginning beyond the southerly project limits and running northerly along the east side of the County Public Work garage to Station 184BV+50, 122'RT where it turns and runs westerly to Station 184BV+07, 81'RT.
- A water main beginning at an existing water vault at Station 183BV+21, 33'LT and running easterly to Station 183BV+67, 17'RT where it turns and runs northerly to Station 184BV+72, 118'LT.
- A water main beginning at an existing water vault at Station 183BV+21, 33'LT and running northwesterly to Station 18XFN+14, 26'LT where it turns and runs westerly to Station 17XFN+12, 111'LT. From there it turns and runs northerly to beyond the northerly project limits.
- A water main beginning beyond the easterly project limits and running westerly, crossing Swan Boulevard at Station 175BV+35 and the WLC Access Road at Station 9XFN+62, and continuing westerly to Station 8XFN+38, 77'LT where it turns and runs northerly to beyond the northerly project limits.
- A water main beginning at Station 184BV+71, 84'LT and running northerly to Station 184BV+93, 119'LT where it turns and runs southeasterly, crossing Swan Boulevard at Station 186BV+11 and USH 45 at Station 382NS+25, and continuing southeasterly to beyond the easterly project limits.

Contact Thomas Travia, (414) 257-6418 office / (414) 339-0408 cell, of Milwaukee County 7 days in advance to coordinate work on Milwaukee County water facilities, locations and any excavation near their facilities.

Wauwatosa Water Utility has underground water main facilities within the project limits in the following locations:

- An underground water main north of Wisconsin Avenue beginning beyond the easterly project limits and running westerly, crossing USH 45 at Station 335NS+02, and continuing westerly to beyond the westerly project limits. This line will remain in place without adjustment.
- An underground water main beginning beyond the easterly project limits and running westerly along the north side of Watertown Plank Road, crossing Swan Boulevard at Station 167BV+66, to beyond the westerly project limits. This line will remain in place without adjustment.

Construct the Wauwatosa water facilities as shown in the plans.

Contact Jim Wojechowicz, (414) 479-8965, of the Wauwatosa Water Utility 7 days in advance to coordinate work on City of Wauwatosa water facilities, locations and any excavation near their facilities.

We Energies – Electric has underground and overhead electric facilities within the project limits in the following locations:

- An overhead electric line beginning beyond the southerly project limits and running northerly, crossing Underwood Parkway at Station 224UDE+26 and WLC Access Road at Station 7XFN+40, and continuing northerly to Station 7XFN+44, 41'LT where it turns and runs easterly, crossing the WLC Access Road at Station 8XFN+44 and Swan Boulevard at Station 174BV+65, and continues easterly to beyond the easterly project limits. We Energies will relocate a pole from Station 224UDE+26, 15'LT to a new location at Station 224UDE+24, 65'LT prior to construction. The remaining portions of this line will remain in place without adjustment.
- An overhead electric line beginning at a pole at Station 224UDE+27, 95'RT and running westerly, crossing alignment XFS at Station 4XFS+46, and continuing westerly to a pole at Station 222UDW+00, 45'RT and then continuing to a pole at Station 221UDW+66, 51'RT. We Energies will remove this pole line prior to construction.
- An underground electric line beginning at a pole at Station 222UDW+00, 45'RT and running westerly to beyond the westerly project limits. We Energies will abandon this line in place between Station 222UDW+00, 45'RT and Station 221UDW+61, 63'RT prior to construction. The remaining portions of this line will remain in place without adjustment.
- An underground electric line beginning at a pole at Station 221UDW+66, 51'RT and running westerly to Station 220UDW+95, 105'RT where it turns and runs northerly to beyond the northerly project limits. We Energies will abandon this line in place between Station 221UDW+66, 51'RT and Station 218UDW+42, 32'RT prior to construction. The remaining portions of this line will remain in place without adjustment.

- An underground electric line beginning at a pole at Station 7XFN+44, 41’LT and running southeasterly, crossing WLC Access Road at Station 8XFN+61, and continuing southeasterly to Station 9XFN+13, 33’RT where it turns and runs northerly, crossing WLC Access Road at Station 9XFN+40, and continuing northerly to beyond the northerly project limits. This line will be abandoned in place prior to construction.
- An underground electric line beginning beyond the southerly project limits and northerly, crossing Swan Boulevard at Station 182BV+13, and continuing northerly to Station 17XFN+90, 8’LT where it turns and runs northeasterly to Station 184BV+60, 4’LT. From there it turns and runs northerly to the west right-of-way of USH 45 and runs northerly along the fence to beyond the northerly project limits. We Energies will abandon this line in place from beyond the southerly project limits to Station 385NS+55, 124’LT prior to construction. The remaining portions of this line will remain in place without adjustment.
- An underground electric line beginning beyond the southerly project limits and running northerly along the west side of existing Swan Boulevard to a WisDOT cabinet at Station 185BV+32, 58’RT. We Energies will abandon this line in place between Station 184BV+51, 153’RT and Station 185BV+32, 58’RT prior to construction.
- An overhead electric line beginning beyond the easterly project limits and running westerly, crossing Swan Boulevard at Station 190BV+09 and crossing USH 45 at Station 384NS+61, and continuing westerly to a pole at Station 385NS+21, 135’LT. We Energies will remove this line between a pole at Station 191BV+41, 70’RT and a pole at Station 385NS+21, 135’LT prior to construction.
- An underground electric line beginning at a pole at Station 188BV+45, 96’LT and running northwesterly to Station 188BV+12, 131’LT where it turns and runs northerly to beyond the northerly project limits. We Energies will abandon this line in place between Station 188BV+45, 96’LT and Station 188BV+12, 131’LT prior to construction. The remaining portions of this line will remain in place without adjustment.
- An overhead electric line beginning from beyond the easterly project limits running westerly along the south side of existing Swan Boulevard to a pole at Station 191BV+41, 70’RT. We Energies will remove this pole line between Station 196BV+21, 64’RT and Station 191BV+41, 70’RT prior to construction.

We Energies will relocate, construct and reconstruct underground and overhead electric facilities in the project area in the following locations prior to construction:

- New underground electric lines beginning beyond the southerly project limits and running northerly, crossing alignment XFS at Station 3XFS+55, and continuing northerly to Station 21UDW+66, 61’LT where it turns and runs northerly, crossing Underwood Parkway at Station 221UDW+00, and continues northerly to a new switch fuse unit at Station 218UDW+79, 33’RT.
- A new underground electric line beginning at a new switch fuse unit at Station 218UDW+79, 33’RT and running northerly to Station 218UDW+43, 30’RT where it turns and runs westerly to Station 218UDW+42, 32’LT.

- A new underground electric line beginning at a new switch fuse unit at Station 218UDW+79, 33'RT and running easterly to Station 8XFN+06, 38'LT where it turns and runs along the north side of WLC Access Road to Station 10XFN+24, 37'LT. From there it turns and runs northerly to Station 15XFN+45, 288'LT where it turns and runs easterly to Station 16XFN+95, 38'LT. From there it turns and runs northeasterly to beyond the northerly project limits.
- A new underground electric line beginning at Station 184BV+45, 154'RT and running northerly to a WisDOT cabinet at Station 185BV+32, 58'RT.
- New underground electric lines beginning at the west right-of-way of USH 45 and running easterly, crossing USH 45 at Station 385NS+38, and continuing easterly to Station 385NS+38, 130'RT where it turns and runs southerly to Station 188BV+13, 132'LT. From there it turns and runs easterly along the north side of Swan Boulevard to Station 197BV+50, 37'LT where it turns and runs southerly, crossing Swan Boulevard at Station 197BV+50, and continues southerly to a pole at Station 197BV+50, 63'RT.

We Energies – Electric also has an abandoned underground electric line beginning at a pole at Station 166BV+90, 200'LT and running easterly along the north side of Watertown Plank Road to beyond the easterly project limits.

Contact Adam Psicihulis, (414) 944-5749, of We Energies - Electric 7 days in advance to coordinate locations and any excavation near their facilities.

We Energies – Gas has an underground gas main beginning beyond the easterly project limits and running westerly to Station 180BV+29, 136'RT. We Energies – Gas will abandon this main prior to construction.

Contact Thomas Minesal, (414) 944-5755, of We Energies - Gas 7 days in advance to coordinate locations and any excavation near their facilities.

WisDOT – Lighting has existing facilities located throughout the project limits. Abandon, remove, leave in place, and reconstruct these facilities as shown in the plans.

Contact Matt Pfeifer, (414) 266-1154, of WisDOT - Lighting 7 days in advance to coordinate locations and any excavation near their facilities.

WisDOT STOC has existing facilities located throughout the project limits. Abandon, remove, leave in place, and reconstruct these facilities as shown in the plans.

Contact Jeff Madson, (414) 225-3723, of WisDOT - STOC 7 days in advance to coordinate locations and any excavation near their facilities.

7. Other Contracts.

A Description

Coordinate your work in accordance to standard spec 105.5.

Modifications to the traffic control plan may be required by the engineer to be safe and consistent with adjacent work by others.

It is expected that routine maintenance by the city and county personnel may be required at certain times concurrently with the work being done under this contract.

The following contracts are anticipated to be under construction within the time period of this contract, unless otherwise indicated:

Contract ID 1060-33-70, Zoo IC – Mayfair Road, from IH 94 to Watertown Plank Road. The WisDOT contact is Joshua LeVeque at (262) 548-8797; joshua.leveque@dot.wi.gov.

Contract ID 1060-33-71, Zoo IC - Glenview Avenue reconstruction from W. Bluemound Road to W. Wisconsin Avenue. The WisDOT contact is Joshua LeVeque at (262) 548-8797; joshua.leveque@dot.wi.gov.

Contract ID 1060-33-72, Zoo IC - Watertown Plank Road Interchange, from Wisconsin Avenue to Underwood Parkway. The WisDOT contact is Jeff Bohen at (414) 750-2928; jeff.bohen@dot.wi.gov.

Contract ID 1060-33-75, Zoo IC - UPRR and STH 100 Bridge reconstruction over IH 94 and the Hank Aaron State Trail. The WisDOT contact is Joshua LeVeque at (262) 548-8797; joshua.leveque@dot.wi.gov.

Contract ID 1060-33-77, Zoo IC - Greenfield Avenue Bridge reconstruction from S. 101st Street to S. 97th Street. The WisDOT contact is Jason Lynch at (414) 750-0538; jason.lynch@dot.wi.gov.

Contract ID 1060-33-78, Zoo IC - 76th Street Bridge over reconstruction from Kearney Street to O'Connor Stret. The WisDOT contact is Jeff Bohen at (414) 750-2928; jeff.bohen@dot.wi.gov.

8. Hauling Restrictions.

Do not haul materials of any kind on any local roads without approval of the local Maintaining Authority and the department. Provide any proposals to haul on local roads with a written agreement between the contractor and the respective Maintaining Authority. Submit a letter to the department from the Maintaining Authority in agreement to the hauling prior to hauling. Contact the respective Maintaining Authority prior to bidding for approval of haul routes

At all times, conduct operations in a manner that causes minimum disruption to traffic on existing roadways. Coordinate with the local authority.

This provision does not reduce or eliminate the contractor responsibility from restoring local roads under the item maintenance and repair of haul roads.

9. Erosion Control.

Prepare and submit an erosion control implementation plan (ECIP) for the project including borrow sites, material disposal sites, dust control, and dewatering in accordance to Chapter TRANS 401 requirements. The erosion control implementation plan shall supplement information shown on the plans and shall not reproduce it. The erosion control implementation plan will identify how the contractor intends to implement the project's erosion control plan.

Provide the ECIP 14 calendar days prior to the pre-construction conference. Provide one copy of the ECIP to WisDOT and one copy of the ECIP to the WDNR Liaison. Pursue operations in a timely and diligent manner, continuing all construction operations methodically from the initial removals and topsoil stripping operations through the subsequent grading, paving, and re-topsoiling to minimize the period of exposure to possible erosion. Do not implement the ECIP until it has been approved by the department.

Re-topsoil of graded areas, as designated by the engineer, immediately after grading is completed within those areas. Seed, fertilize, and mulch/erosion mat top-soiled areas, as designated by the engineer, within five calendar days after placement of topsoil. If graded areas are left exposed for more than 14 calendar days, seed those areas with temporary seed.

When performing roadway cleaning operations, use equipment having vacuum or water spray mechanism to eliminate the dispersion of dust. If vacuum equipment is employed, it shall have suitable self-contained particulate collectors to prevent discharge from the collection bin into the atmosphere.

Stockpile excess material or spoils on upland areas away from wetlands, floodplains and waterways. Stockpiled soil shall be protected against erosion, and stabilized weekly. If stockpiled material is left for more than 14 calendar days, seed the stockpile with temporary seed.

10. Public Convenience and Safety.

Revise standard spec 107.8(6) as follows:

Check for and comply with local ordinances governing the hours of operation of construction equipment, unless prior written approval is obtained from the engineer.

Noise levels between the night-time hours of 9:00 PM to 7:00 AM shall be restricted as follows including the use of pneumatic hammers and pavement removal, unless compliance is waived by the engineer:

Residential areas	Do not exceed 5 dB(A) over preconstruction ambient noise levels
All other areas outside WisDOT right-of-way	Do not exceed 5 dB(A) over preconstruction ambient noise levels

Prior to waiving the noise compliance by the engineer, provide 48 hour advance notice to Mr. William Wehrley, City Engineer, at (414) 479-8929 regarding the evening noise generating construction operations.
107-001 (20060512)

11. Available Documents.

The department will make all its information available to bidding contractors. The list of documents that are available for contractors' information includes but is not limited to:

Design Study Report

Exceptions to Standards Report

Interstate Access Justification Report

Pavement Type Selection Report

Preliminary Plans

Environmental Impact Statement

As-Built Drawings

Preconstruction survey

These documents are available from Jeff Bohen at 141 NW Barstow Street, Waukesha, WI 53187. He may be reached at (414) 750-2928.

Reproduction costs will be applied to any copies requested.

12. Geotechnical Investigation Information.

Replace standard spec 102.5(3) 2 with the following:

Available information relative to subsurface exploration, borings, soundings, water levels, elevations or profiles are available for review at the department's Regions office. Contact Jeff Bohen, 141 NW Barstow Street, Waukesha, WI 53187, (414) 750-2928, and via email at Jeff.Bohen@dot.wi.gov

Geotechnical Exploration and Retaining Wall Evaluation Report:
Retaining Wall R-40-484
Retaining Wall R-40-485

Geotechnical Exploration and Bridge Evaluation Report:
B-40-775

Watertown Plank Road Excavation Below Subgrade Recommendations – Zoo Interchange Corridor Study, ID #1060-33-09, dated November 16, 2011.

Swan Boulevard Pavement Structural Design Report – ID 1060-33-73, dated July 11, 2012.

Additional geotechnical information is available from studies and analyses that have been performed by Forward 45 (F45) for the department for other aspects of this project. Review the available information to determine if it is of use. The use or not of the geotechnical information does not relieve performing the work in accordance to the plans and specifications.

13. Public Information Meetings.

Participate in department-sponsored public information meetings as the engineer requests. Ensure that representatives of subcontractors also participate in those meetings if the engineer requests.

14. Contractor Notification.

Replace standard spec 104.2.2.2(2) with the following:

If the contractor discovers the differing condition, provide a written notice, as specified in standard spec 104.3.3, of the specific differing condition before further disturbing the site and before further performing the affected work.

104.3.2 (Vacant)

104.3.3 Contractor Initial Written Notice
Replace standard spec 104.3.2 and standard spec 104.3.3 with the following:

If required by standard spec 104.2, or if the contractor believes that the department's action, the department's lack of action, or some other situation results in or necessitates a contract revision, promptly provide a written notice to the engineer. At a minimum, provide the following:

- A written description of the nature of the issue.
- The time and date of discovering the problem or issue.
- If appropriate, the location of the issue.

Provide the additional information specified in standard spec 104.3.5 as early as possible to assist the engineer in the timely resolution of an identified issue. The engineer will not require, in subsequent submissions, duplication of information already provided.

15. Contractor Document Submittals.

A Description
This special provision describes minimum requirements for submitting project documents to the department. This special provision does not apply to shop drawing submittals.

B Contractor Submittals
Provide two paper originals and one electronic copy of all documents requiring department review, acceptance, or approval. Attach a completed engineer-provided transmittal sheet to each paper original and email submittal. The department will reject submittals with incomplete transmittal sheets and require re-submittal.

The department will return one reviewed, accepted, or approved paper original to the contractor. Additional return originals can be requested. Submit an additional original for each additional return original requested.

Submit electronic copies in Adobe Acrobat (.pdf) format via email to an account the engineer determines. If possible, translate original documents from their native format (e.g. Word, Excel, AutoCAD, etc.) using an Adobe Acrobat translation routine. Scan other documents to Adobe Acrobat format with a minimum resolution of 600 dpi.

All costs for contractor document submittals are incidental to the contract.

16. Information to Bidders, Use of Recovered Material.

The department encourages the use of waste materials and recovered industrial byproducts (eg. foundry sand used as trench backfill) as material substitutions (standard spec 106.2.1), provided they meet standard specification gradation requirements, conform to NR 538 requirements, and/or follow standard engineering practice for their intended use.

17. Payment Tracking.

A Reporting Payments During Construction
Comply with reporting requirements specified in the department's civil rights and labor compliance management system manual.

Report payments to all first tier relationships including subcontractors, suppliers, and trucking firms within ten calendar days of receipt of a progress payment by the department or a contractor for work performed, materials furnished, or materials stockpiled by subcontractors, suppliers, and trucking firms. Report the payment as specified in A(1) for all work satisfactorily performed and for all materials furnished or stockpiled.

Require all first tier relationships including subcontractors, suppliers, and trucking firms in receipt of a progress payment by contractor to acknowledge receipt of payment as specified in A(1) and (2).

All agreements made by a contractor shall include the provisions in A(1) and (3), and shall be binding on all first tier relationships including subcontractors, suppliers, and trucking firms on the project.

B (Vacant)

C (Vacant)

D (Vacant)

E Payment
Costs for conforming to this special provision are incidental to the contract.

18. Labor Compliance Reporting – Payroll Requirements.

Submit weekly certified payrolls verifying prevailing wage rates for all work performed under the contract as directed in the civil rights and labor compliance management system manual. Submit weekly certified payrolls within seven calendar days of the week covered by the weekly certified payroll.

19. Nighttime Work Lighting-Stationary.

A Description
Provide portable lighting as necessary to complete nighttime work. Nighttime operations consist of work specifically scheduled to occur after sunset and before sunrise.

B (Vacant)

C Construction
C.1 General
This provision shall apply when providing, maintaining, moving, and removing portable light towers and equipment-mounted lighting fixtures for nighttime stationary work operations, for the duration of nighttime work on the contract.

At least 14 days prior to the nighttime work, furnish a lighting plan to the engineer for review and acceptance. Address the following in the plan:

1. Layout, including location of portable lighting – lateral placement, height, and spacing. Clearly show on the layout the location of all lights necessary for every aspect of work to be done at night.

2. Specifications, brochures, and technical data of all lighting equipment to be used.

3. The details on how the luminaires will be attached.

4. Electrical power source information.

5. Details on the louvers, shields, or methods to be employed to reduce glare.

6. Lighting calculations. Provide illumination with average to minimum uniformity ratio of 5:1 or less throughout the work area.

7. Detail information on any other auxiliary equipment.

C.2 Portable Lighting

Provide portable lighting that is sturdy and free standing and does not require any guy wires, braces, or any other attachments. Furnish portable lighting capable of being moved as necessary to keep up with the construction project. Position the portable lighting and trailers to minimize the risk of being impacted by traffic on the roadway or by construction traffic or equipment. Provide lightning protection for the portable lighting. Portable lighting shall withstand up to 60 mph wind velocity.

If portable generators are used as a power source, furnish adequate power to operate all required lighting equipment without any interruption during the nighttime work. Provide wiring that is weatherproof and installed according to local, state, federal (NECA and OSHA) requirements. Equip all power sources with a ground-fault circuit interrupter to prevent electrical shock.

C.3 Light Level and Uniformity

Position (spacing and mounting height) the luminaires to provide illumination with an average to minimum uniformity ratio of 5:1 or less throughout the work area.

Illuminate the area as necessary to incorporate construction vehicles, equipment, and personnel activities.

C.4 Glare Control

Design, install, and operate all lighting supplied under these specifications to minimize or avoid glare that interferes with all traffic on the roadway or that causes annoyance or discomfort for properties adjoining the roadway. Locate, aim, and adjust the luminaires to provide the adequate level of illumination and the specified uniformity in the work area without the creation of objectionable glare.

Provide louvers, shields, or visors, as needed, to reduce any objectionable levels of glare. As a minimum, ensure the following requirements are met to avoid objectionable glare on the roadways open to traffic in either direction or for adjoining properties:

1. Aim tower-mounted luminaires, either parallel or perpendicular to the roadway, so as to minimize light aimed toward approaching traffic.

2. Aim all luminaires such that the center of beam axis is no greater than 60 degrees above vertical (straight down).

If lighting does not meet above-mentioned criteria, adjust the lighting within 24 hours.

C.5 Continuous Operation
Provide and have available sufficient fuel, spare lamps, generators, and qualified personnel to ensure that the lights will operate continuously during nighttime operation. In the event of any failure of the lighting system, discontinue the operation until the adequate level of illumination is restored. Move and remove lighting as necessary.

D (Vacant)

E Payment
Costs for furnishing a lighting plan, and for providing, maintaining, moving, and removing portable lighting, tower mounted lighting, and equipment-mounted lighting required under this special provision are incidental to the contract.
643-010 (20100709)

20. Dust Control Implementation Plan.

A Description
Develop, update, and implement a detailed Dust Control Implementation Plan (DCIP) for all land-disturbing construction activities and associated impacts both within the project site boundaries and outside the project site boundaries. Incorporate contract bid items that this article specifies into the DCIP.

B (Vacant)

C Construction
C.1 General
Take responsibility for dust control on the project as specified in standard spec 107.18. Minimize dust emissions resulting from land disturbing activities. Do not generate excessive air borne particulate matter (PM) or nuisance dust conditions. Take direct responsibility for controlling dust at all times throughout the duration of the contract, 24 hours per day, 7 days per week, including non-working hours, weekends, and holidays.

Submit a DCIP to the engineer for review at least 14 calendar days before the preconstruction conference. Coordinate with the department, if requested, to resolve DCIP related issues before the preconstruction conference. The department will either approve the DCIP or request revisions. Do not initiate any land-disturbing activities without the department's approval of the DCIP.

C.2 Dust Control Implementation Plan Contents

Develop a DCIP tailored to the specific needs of the project. Consider potential impacts to businesses and residences adjacent to the job site. Describe in detail all land disturbing, dust generating activities. Identify strategies to prevent, mitigate, and collect excess dust. Establish clear lines of communication with the engineer to ensure that all dust control issues can be dealt with promptly.

The DCIP shall include, but not be limited to, all of the following:

1. A single contact person with overall responsibility for the DCIP development as well as surveillance and remediation of job related dust. Include the following:
    - Name, firm, address, and working-hours phone number.
    - Non-working-hours phone number.
    - Email address.
2. Individual contact persons and their respective areas of responsibility. Include the following:
    - Name, firm, address, and working-hours phone number.
    - Non-working-hours phone number.
    - Email address.
3. A site map locating project features, the job site boundaries, all ingress and egress points, air intakes and other dust-sensitive areas, and all public and private paved surfaces within and immediately adjacent to the job site. Show where specific land disturbing, dust generating activities will occur and, to the extent possible, where employing various dust control or prevention strategies.
4. A matrix showing, for each anticipated land disturbing, dust generating activity, the following:
    - Preventive measures that shall be employed.
    - The applicable contact person.
    - The contractor’s timetable and/or surveillance measures used to determine when remediation is required.
    - The specific dust control and remediation measures that shall be employed. List the specific contract bid items that shall be used for payment. Also indicate costs that are incidental to the contract.
    - Both maintenance and cleanup schedules and procedures.
    - How excess and waste materials shall be disposed of.
5. A description of how off-site impacts shall be monitored and dealt with.

C.3 Updating the Dust Control Implementation Plan

Update the DCIP throughout the term of the contract as the engineer directs. Obtain the engineer's approval for all DCIP alterations. Also obtain the engineer's approval for DCIP routine adjustments for weather, job conditions, or emergencies that will have an impact on payment under the bid items listed in the approved DCIP.

C.4 Dust Control Deficiencies

Correct engineer identified dust control deficiencies within the time the engineer specifies. The engineer will allow from 30 minutes to 24 hours from the time the engineer notifies the contractor in writing of the deficiency. Deficiencies include, but are not limited to, actions or lack of actions resulting in excessive dust, failing to comply with the contractor's dust control implementation plan or associated special provisions, and failing to properly maintain equipment.

D Measurement

The department will measure the various bid items associated with dust control as specified in the applicable measurement subsections of either the standard specifications or other contract special provisions. The department will not measure work performed under a DCIP alteration unless the engineer specifically approves that alteration.

Measurement under the DCIP shall include, but is not limited to, the contract bid items listed below:

623.0200	Dust Control Surface Treatment
624.0100	Water
628.7560	Tracking Pads
SPV.0105.0002	Pavement Cleanup

The department will measure work completed under other existing contract bid items if approved as a part of the DCIP. The department will consider new bid items to the contract if proposed under the DCIP. The department will not measure work required under the DCIP that is not included in contract bid items.

E Payment

All costs associated with the development and updating of the DCIP are incidental to the contract. The department will pay separately for the work required to implement the actions approved in the DCIP under the contract bid items approved as a part of the DCIP. All other costs associated with work approved under the DCIP are incidental to the contract.

21. Project Site Air Quality.

Because fine particulate matter levels for Milwaukee, Racine and Kenosha Counties are typically close to $PM_{2.5}$ limits and the project is in a non-attainment area for the federal 8-hour ozone standard, contributions from construction activities can have a major impact well beyond the project limits. Take practical measures to mitigate the impact of operating construction equipment on the air quality in and around the project site.

Voluntarily establishing the staging zones for trucks waiting to load and unload is encouraged by the department. Locate staging zones where idling of diesel powered equipment will have minimal impact on abutting properties and the general public. The department will make signs available to help identify these zones. Have truckers queue up in these zones whenever it is practical. The department further encourages drivers to

shut down diesel trucks as soon as it appears likely that they will be queued up for more than ten minutes. Notify employees and sub-contractors about fueling and engine idling.

Portable Concrete Crusher Plants
Portable concrete crusher plants may need a NR 440 Concrete Crusher Plant Air Permit for air emissions. Contact Mike Griffin, Wisconsin Department of Natural Resources, Air Compliance Engineer, (414) 263-8554, to request additional information and permit application materials. Complete permit applications may take three months to process.

22. OCIP Information.

The Owner Controlled Insurance Program (OCIP)

The Zoo Interchange project will be constructed under the umbrella of an Owner Controlled Insurance Program (OCIP). Contractor/Consultant participation in this Corridor Project is mandatory and requires enrollment into the OCIP. The OCIP requires submitted bids to exclude the cost of the OCIP provided coverage. Additional information regarding OCIP can be found at:

http://roadwaystandards.dot.wi.gov/hcci/index.shtm.

If you have any questions regarding the OCIP, including questions on if your company needs to be enrolled into the OCIP, please contact Kevin Gehrmann at (608) 267-7722.

23. Owner Controlled Insurance Program.

Standard spec 107.26, "Standard Insurance Requirements" is deleted in its entirety and the following standard spec 107.26 is substituted thereof:

107.26 Standard Insurance Requirements

107.26(1)(a) Owner Controlled Insurance Program

1. Overview. The State of Wisconsin, Department of Transportation ("the WisDOT") has arranged with Aon Risk Solutions, (the "OCIP administrator") for this Project to be ensured under its Owner Controlled Insurance Program ("OCIP"). The OCIP is more fully described in the Zoo Interchange manual for the Owner Controlled Insurance Program (the "Insurance Manual") and the Safety and Health Plan Manual that are incorporated in this Special Provision and the Contract by this reference. Parties performing labor or services at the Project Site (as defined by the OCIP Policies) are eligible to enroll in the OCIP unless the party is an excluded party (as defined below). The OCIP will provide to enrolled parties(as defined below) workers' compensation and employer's liability insurance, commercial general liability insurance, Builders Risk and Excess Liability insurance as summarily described below in connection with the performance of the Work ("OCIP coverage's").

2. Enrolled Parties and Their Insurance Obligations. OCIP coverage applies only to Enrolled Parties. Enrolled Parties include the WisDOT and its employees, non-excluded Contractors and Subcontractors of all tiers who enroll in the OCIP, all employees of Enrolled Contractor's and Subcontractor's who perform Work at the Project Site, and such other persons or entities that the WisDOT, in its sole discretion, may designate (each such party who is ensured under the OCIP is collectively referred to as an "Enrolled Party").

Enrolled Parties shall obtain and maintain, and shall require each of its Subcontractors to obtain and maintain, the insurance coverage specified in 107.26(1)(a) 8 below.

3. Excluded Parties and Their Insurance Obligations. OCIP coverage's do not apply to the following "Excluded Parties":

a. Hazardous materials remediation, removal and/or transport companies;

b. Vendors *, suppliers, fabricators, material dealers, truckers**, haulers, drivers and others who merely transport, pickup, deliver, or carry materials, personnel, parts or equipment or any other items or persons to or from the Project;

* WisDOT is requiring all vendors who perform maintenance on an enrolled contractor's equipment to be enrolled in the OCIP. Please see "WisDOT OCIP Enrollment Guidance Relating to Service Vendors" to determine whether they will be enrolled per project id number or on a Miscellaneous blanket basis.

** Truckers that come on site must remain in the cab of the vehicle.

Refer to the "Enrollment Matrix" which clearly outlines the requirements contingent upon the category that the entity falls under, such as: Contractor; Subcontractor; Consultant; Visitor; etc.

c. Sanitary disposal facility providers, if the only function is to drop off the units and pick them up later, they are material suppliers and are excluded. If the company also services/cleans the units on site, that is no longer being a material supplier. (Refer to "Enrollment Matrix", Vendors Providing Maintenance On Site).

d. Contractors and Subcontractors of any tier that do not perform any actual labor on the Project site;

e. Any party or entity not specifically identified in this special provision or excluded by the WisDOT as permitted by law, even if otherwise eligible.

f. If you are not employed by an Enrolled Party, but performing services of an Excluded Party, you are not covered by the OCIP.

Excluded Parties and parties not enrolled in the OCIP shall obtain and maintain, and shall require each of its excluded Subcontractors to obtain and maintain, the insurance coverage specified in standard spec 107.26(1)(a) 8 below and in the Insurance Manual. Excluded Parties shall comply with all of the safety requirements pursuant to standard spec 107.26(1)(a) 16.

4. OCIP Insurance Policies Establish OCIP coverage's. The OCIP coverage's and exclusions summarized in this special provision and the other contract documents are set forth in full in their respective insurance policy forms. The summary descriptions of the OCIP coverage's in this special provision or the Insurance Manual are not intended to be complete or to alter or amend any provision of the actual OCIP coverage's. In the event any provision of this special provision, the Insurance Manual, or the contract documents, conflicts with the OCIP insurance policies, the provisions of the actual OCIP insurance policies shall govern.

5. Summary of OCIP Coverage's. OCIP coverage's will apply only to those operations of each Enrolled Party performed at the Project Site (as defined in the OCIP insurance Policies) in connection with the Work and only to Enrolled Parties that are eligible for the OCIP.

The OCIP coverage's are primary insurance for all Enrolled Parties for occurrences during the policy period at the Project Site (as defined in the OCIP Policies). The OCIP will provide at least the following insurance to Enrolled Parties:

Summary of OCIP Coverages

This is a brief description of OCIP Insurance Coverage. Enrolled Parties should refer to the actual policies for details concerning coverage, exclusions and limitations.

a. Workers' Compensation Insurance -Statutory Limit including Jones Act and USL&H coverage, as applicable.

b. Employer's Liability Insurance $1,000,000 Bodily Injury by Accident, each accident $1,000,000 Bodily Injury by Disease, each employee $1,000,000 Bodily Injury by Disease, policy limits

c. Commercial General Liability (ISO Occurrence Form – Limits Shared By All Ensureds) $2,000,000 Each Occurrence Limit (Annual Limit) $2,000,000 Personal/Advertising Injury Aggregate $4,000,000 General Aggregate Limit for all Enrolled Parties (Annual Limit)

$4,000,000 Products & Completed Operations Aggregate for all Enrolled Parties (Single Limit Applies to Entire Products & Completed Operations Extension)

10 yr. Products & Completed Operations Extension

d. The OCIP Commercial General Liability policy will not provide coverage for any claim that could be covered under a property policy or Builder's Risk policy.

e. Excess Liability insurance (over Employer's Liability & General Liability – Limits Shared by All Ensureds)

$100,000,000 Each Occurrence Limit

$100,000,000 Aggregate (Annual Limit)

$100,000,000 Products & Completed Operations Aggregate Limit (Single Limit Applies to Entire Products & Completed Operations Extension).

f. Builder's Risk Insurance Coverage:

This is a brief description of Builder's Risk Insurance Coverage. Contractor should refer to the actual policies for details concerning coverage, exclusions and limitations.

The Builder's Risk insurance covers ensures property, including materials, supplies, machinery, fixtures and equipment which will become a permanent part of the Work (excluding road work at grade level) in the course of construction.

The Builder's Risk coverage ensures WisDOT and Enrolled Parties.

Builders Risk:

	Limit
Each Occurrence Limit	$100,000,000

Builder's Risk Obligation:

Contractor or Subcontractor shall pay to the WisDOT's designee within five (5) days written notice a maximum of up to twenty-five thousand dollars ($25,000.00) for each loss payable under the Builder's Risk Policy attributable to Contractor's Work, acts or omissions, or the Work, acts or omissions of any of Contractor's Subcontractors, or any other entity or party for whom Contractor may be responsible ("builder's risk obligation").

6. The WisDOT's Insurance Obligations.

a. The WisDOT will pay the costs of premiums for the OCIP coverage's and WisDOT will receive or pay, as the case may be, all adjustments to such costs, whether by way of dividends, retroactive adjustments, return premiums, other moneys due, audits or otherwise.

b. The WisDOT assumes no obligation to provide insurance other than that specified in this special provision and the OCIP insurance policies.

c. Except as provided by applicable law, the WisDOT's furnishing of OCIP coverage's will in no way relieve or limit, or be construed to relieve or limit, Contractor or any of its Subcontractors of any responsibility, liability, or obligation imposed by the contract documents, the OCIP insurance policies, or by law, including without limitation any indemnification obligations which Contractor or any of its Subcontractors has to the WisDOT there under. The WisDOT reserves the right at its option, to furnish other insurance coverage of various types and limits provided that such coverage is not less than that specified in the contract documents.

7. Contractor's OCIP Obligations. Contractor shall:

a. Assign to WisDOT the right to receive all such adjustments, and shall require that each of its Subcontractors of every tier assigns to WisDOT the right to receive all such adjustments.

b. Incorporate the terms of this special provision in all subcontract agreements.

c. Enroll and maintain enrollment in the OCIP, and shall ensure that each non-Excluded subcontractor, enrolls and maintains enrollment in the OCIP. Enrollment shall take place within five (5) days of a receipt of a Notice to Proceed, and prior to commencement of work. Comply with all of the administrative, safety, insurance, and other requirements outlined in this special provision, the Insurance Manual, the OCIP insurance policies, the Safety and Health Plan Manual, or elsewhere in the contract documents.

d. Provide each of its Subcontractors with a copy of the Insurance Manual and ensure Subcontractor compliance with the provisions of the OCIP insurance policies, the Insurance Manual, this special provision, and the contract documents. The failure of (a) the WisDOT to include the Insurance Manual in the bid documents or (b) Contractor to provide each of its eligible Subcontractors with a copy of same shall not relieve Contractor or any of its Subcontractors from any of the obligations contained therein.

e. Acknowledge, and require all of its Subcontractors to acknowledge in writing, that the WisDOT and the OCIP administrator are not agents, partners or guarantors of the insurance companies providing coverage under the OCIP (each such ensurer, an "OCIP ensurer") and that the WisDOT is not responsible for any claims or disputes between or among Contractor, its Subcontractors, and any OCIP ensurer(s). Any type of insurance coverage or limits of liability in addition to the OCIP coverage's that Contractor or any Subcontractor requires for its or their own protection, or that is required by applicable laws or regulations, shall be Contractor's or its Subcontractor's sole responsibility and expense and shall not be billed to the WisDOT.

f. Cooperate fully with the OCIP administrator and the OCIP ensurers, as applicable, in its or their administration of the OCIP.

g. Provide, within five (5) business days of the WisDOT's or the OCIP administrator's request, all documents or information as requested of Contractor or its Subcontractors. Such information may include but not be limited to, payroll records, certified copies of insurance coverage's, declaration pages of coverage's, certificates of insurance, underwriting data, prior loss history information, insurance audits, safety records or history, OSHA citations, or such other data or information as the WisDOT, the OCIP administrator, or OCIP ensurers may request in the administration of the OCIP, or as required by the Insurance Manual.

h. Pay to the WisDOT's designee within five (5) days of written notification, a sum of up to **$10,000** of each claim, including court costs, attorneys fees and costs of defense for property damage to the extent losses are ensured under the OCIP Commercial General Liability policy for those losses that are attributable to Contractor's Work, acts or omissions, or the Work, acts or omissions of any of its Subcontractors, or any other entity or party for whom Contractor may be responsible ("contractor General Liability obligation"). The contractor General Liability obligation will not be ensured by the OCIP Coverage's.

8. Additional Insurance Required From Enrolled Parties and Excluded Parties. Contractor shall obtain and maintain, and shall require each of its Subcontractors of every tier to obtain and maintain, the insurance coverage specified in this Section in a form and from insurance companies reasonably acceptable to the WisDOT. The insurance limits may be provided through a combination of primary and excess policies, including the umbrella form of policy. The insurance required by this Section shall conform to the WisDOT's requirements outlined in the Insurance Manual and be written by companies authorized to do business in the state of Wisconsin with an **AM Best rating of A-or**

better. Contractor shall provide certificates of insurance coverage to the WisDOT as required below and by the Insurance Manual.

As to Enrolled Parties, the Workers' Compensation, Employer's Liability, and Commercial General Liability insurance required by this section shall only be for operations away from the Project Site (as defined by OCIP Policies). The cost of providing the required insurance coverage and limits is incidental to the contract. The department will make no additional or special payment for providing insurance.

TYPE OF INSURANCE MINIMUM LIMITS REQUIRED

1. Commercial General Liability insurance shall be endorsed to include Blanket Contractual Liability coverage.

   a. $2,000,000 Combined Single Limits per occurrence with an annual aggregate limit of not less than $4,000,000.

   b. The OCIP Coverage's shall exclude blasting or explosion operations. If blasting or explosion operations are used in connection with the Work, Commercial General Liability insurance shall not contain an exclusion for blasting or explosion and shall be provided in limits established by the WisDOT at the time such blasting or explosion methods are elected. Such coverage shall apply to operations whether the operations occur on the Project site or away from the Project site.

   c. Wisconsin Department of Transportation, their respective officers, agents and employees, and any additional entities as the WisDOT may request as additional ensureds must be named as an Additional Ensured which shall include: i) liability arising out of the Work performed by the named ensured; ii) liability arising out of the supervision of the Work performed by or operations of the named ensured; and iii) liability of the acts or omissions of the Additional Ensureds relating to Work performed by the named ensured for the Project, except for sole negligence of the Additional Ensureds iv) will state that coverage is afforded on a primary and non-contributory basis.

   d. Ongoing Construction Operation(s) in effect at all times while work is being performed by Contractor;

   e. Subcontractors and Independent Contractors (if any);

   f. Products and Completed Operations, including coverage applicable to additional ensureds (as required by this agreement) with Completed Operations coverage to remain in force, whether by endorsement or renewal of coverage, including the Contractor, any party required to be indemnified by this Contract and any other party required by this Contract to be named as an additional ensured, for at least two (2) years from the date of final completion of the Project and WisDOT's acceptance of the work; and

   g. Explosion, collapse, and underground hazards.

   h. Contractual Liability (ensured contract) coverage sufficient to meet the requirements of this Contract (including defense costs and attorney's fees assumed under contract);

i. Personal and Advertising Injury Liability coverage (with the standard contractual and employee exclusions deleted);

j. Notice and Knowledge of Occurrence conditions limited to the knowledge of relevant corporate officers or risk managers with an Unintentional Errors and Omissions provision (providing that the ensurer may not deny coverage unless it can show that it has been prejudiced by a failure of the ensured to comply with a condition of the policy); and

k. CG 22 79 07 98 (or equivalent) is the only acceptable Professional Liability Exclusion.

l. Operations performed within 50' of railroad

m .Contractors must provide their own insurance for owned, leased, rented and borrowed equipment, whether such equipment is located at a Project Site or "in transit". Contractors are solely responsible for any loss or damage to their personal property including, without limitation, property or materials created or provided under the Contract until installed at the Project Site, Contractor tools and equipment, scaffolding and temporary structures.

2. Workers' Compensation and Employer's Liability insurance.

a. Workers' Compensation Limits: Statutory Limits

b. Employer's Liability limits:

$1,000,000 Bodily Injury by Accident, each accident $1,000,000 Bodily Injury by Disease, each employee $1,000,000 Bodily Injury by Disease, policy limits

Terms and conditions shall include:

- USL&H – where applicable.
- Jones Act – where applicable.
- All states endorsement -where applicable.

3. Commercial Automobile Liability insurance as specified by Insurance Services Office (ISO), form CA 00 01, symbol 1 (any auto) with the following limits and endorsements:

a. No Trucking or Hauling: $1,000,000 Each Accident

b. Trucking or Hauling (Non Hazardous Materials): $2,000,000 Each Accident

c. Trucking or Hauling Hazardous Materials: $5,000,000 Each Accident with an MCS 90 Endorsement and ISO Endorsement CA 99 48.

4. For any work over water, whether deemed navigable or otherwise, Contractors Pollution Liability insurance with $2,000,000 per occurrence and $2,000,000 aggregate policy limits.

5. Aviation and/or Watercraft Liability insurance, as appropriate, including hull and protection and indemnity for watercraft, or other insurance, in form and with limits of liability and from an insuring entity reasonably satisfactory to the WisDOT.

Contractor's failure to procure or maintain the insurance required by this Section and to assure all its Subcontractors of every tier maintain the required insurance during the entire term of the contract shall constitute a material breach of this contract under which the WisDOT may immediately suspend or terminate this contract or, at its discretion, procure or renew such insurance to protect the WisDOT's interests and pay any and all premiums in connection therewith, and withhold or recover all monies so paid from the Contractor.

Contractor shall provide the WisDOT with certificates of insurance as evidence that required
coverage's for insurance detailed in this section are in force. The bidder shall provide certificates of insurance in their pre-qualification statement as specified in 102.1.

Contractor shall notify the WisDOT at least 60 calendar days before a cancellation or material change in coverage and only obtain coverage from insurance companies licensed to do business in the state that have an AM Best rating of A- or better. The cost of providing the required insurance coverage and limits is incidental to the contract. The WisDOT will make no additional or special payment for providing insurance.

The above insurance requirements shall apply with equal force whether the Contractor or a Subcontractor, or anyone directly or indirectly employed by either, performs the work under the Project.

9. Additional Ensureds:

All insurance required by this agreement (excluding only workers compensation insurance) shall name WisDOT, all parties required to be indemnified by this Contract and all other parties as reasonably requested by the WisDOT, as additional ensureds. All policies (including primary, excess and/or umbrella) must provide that coverage shall be primary and non-contributory to any insurance maintained by the Contractor or the additional ensured, all of which shall be stated on the Certificate of Insurance provided by the Contractor. The Additional Ensured Endorsement shall be on Form CG 20 10 11/85, or CG 20 33 10/01 plus CG 20 37 10/01, or equivalent, and shall include ongoing and completed operations coverage, which shall not contain any restrictions**.**

IN THE EVENT THAT THE LAW OF THE STATE IN WHICH THE PROJECT IS LOCATED (OR APPLICABLE LAW) LIMITS THE ADDITIONAL ENSURED COVERAGE THAT WISDOT MAY REQUIRE FROM THE CONTRACTOR, THEN THE CONTRACTOR SHALL BE REQUIRED TO OBTAIN ADDITIONAL ENSURED COVERAGE TO THE FULLEST EXTENT OF COVERAGE AND LIMITS ALLOWED BY APPLICABLE LAW A ND THIS CONTRACT SHALL BE READ TO CONFORM TO SUCH LAW.

10. Contractor Representations and Warranties to the WisDOT. Contractor represents and warrants to the WisDOT or behalf of itself and its Subcontractors:

a. That all information it submits to the WisDOT or the OCIP administrator shall be accurate and complete.

b. That Contractor, on behalf of itself and its Subcontractors, has had the opportunity to read and analyze copies of the OCIP binders and specimen policies that are on file in the WisDOT's office. Any reference or summary in the contract, this special provision, the Insurance Manual, or elsewhere in any other contract document as to amount, nature, type or extent of OCIP coverage's and/or potential applicability to any potential claim or loss is for reference only. Contractor and its Subcontractors have not relied upon said reference but solely upon their own independent review and analysis of the OCIP coverage's in formulating any understanding and/or belief as to amount, nature, type or extent of any OCIP coverage's and/or its potential applicability to any potential claim or loss.

c. That the costs of OCIP coverage's were not included in Contractor's bid or proposal for the Work, the contract price, and will not be included in any change order, change modification, or any request for payment for the Work or extra work. The "costs of OCIP coverage's" is defined as the dollar amount of premiums, costs and fees the Contractor and its Subcontractors would have paid its insurance carrier to ensure the operations and exposures which are being ensured under the OCIP.

d. That Contractor acknowledges that the WisDOT will not pay or compensate Contractor or any Subcontractor, in any manner, for costs of OCIP coverage's or for "insurance costs" except as specifically required to be maintained by Contractor by the terms of this special provision.

11. Severability of Interests (Cross Liability):

All insurance required by this agreement (excluding only workers compensation insurance) shall include a provision or be endorsed to provide that, inasmuch as the policy is written to cover more than one ensured, all terms, conditions, insuring agreements and endorsements, with the exception of limits of liability, shall operate in the same manner as if there were a separate policy covering each ensured. No cross liability exclusions are permitted and there may not be any restrictions in any policies that limit coverage for a claim brought by an additional ensured against a named ensured. Also, there shall not be any provision in any insurance policy which excludes or conditions coverage on the existence of a contract or other agreement requiring insurance.

12. Breach of Insurance Requirements:

The Contractor's failure to obtain and maintain insurance coverages as required by this agreement shall constitute a material breach of the Contract. In such event WisDOT may at its option: (i) terminate the Contractor for default; or (ii) purchase such coverage and backcharge the premium and associated costs to the Contractor; or (iii) at their respective option, WisDOT and/or an additional ensured can require the Contractor and/or its Subcontractors to pay for attorney's fees, expenses, damages and liability as a result of

any claim or lawsuit to the extent coverage would have been provided to them under the Contractor's insurance but for the Contractor's breach WisDOT has the right to backcharge the Contractor for such sums. Furthermore, to the extent of their respective interest, the Ensurers of those entities that were to be included as additional ensureds are deemed to be third-party beneficiaries of the insurance procurement obligation.

13. **Subcontractor**:

Before permitting any Subcontractor to perform work under a subcontract, the Contractor shall require by written contract that the Subcontractor maintain insurance in like form and amounts to that required herein. The Contractor shall be responsible to ensure that each Subcontractor maintains insurance in like form and amounts and shall Provide evidence of same if requested. Contractor shall provide copies of its Subcontractor's certificates of insurance coverage to WisDOT or the OCIP Administrator upon request.

14. Notice of Cancellation:

All insurance coverages required by this agreement shall contain a provision that the coverage afforded thereunder cannot be cancelled, non-renewed, allowed to lapse, or have any restricted modifications added unless at least thirty (30) days prior written notice has been given to WisDOT. The Contractor is responsible to provide replacement coverage conforming with the requirements of this agreement in the event of any cancellation, non-renewal or modification of any insurance coverages required by this agreement.

15. Limits of Insurance:

The Contractor's insurance coverage and any additional ensured coverage provided to WisDOT and any additional ensured shall be for the full amount of any loss up to the policy(s) limits of liability and shall not be limited to the minimum insurance requirements of this Contract. The Contractor is responsible for notifying its insurance carriers in the event of a loss or potential loss involving coverage for the additional ensureds. However, this does not prohibit any additional ensureds from reporting a claim directly to the Contractor's insurance carriers.

16. Deductibles/Denial of Claims:

The Contractor shall be responsible, at no additional cost to WisDOT, for the payment of any deductibles or self-ensured retention in connection with the insurance coverages required by this agreement, both for itself and all additional ensureds. Any self-ensured retention or deductible must be declared in writing at the time the Contractor submits its bid and must be specifically approved by WisDOT prior to execution of the Contract. The Contractor shall be responsible for any loss arising out of coverage denial by its insurance carrier. The Contractor may not procure policies that limit who may pay the SIR or deductible; rather, any SIR shall be payable by either the Contractor or the Subcontractor and the Contractor may not have a policy that prevents WisDOT from accessing or triggering coverage unless the SIR is paid by the Contractor. Contractor shall also ensure that similar conditions are incorporated into all subcontracts. In the

event that WisDOT is required to pay any deductible and/or SIR to access any insurance policy, Subcontractor shall promptly reimburse the Contractor for such payment.

17. No Waiver of Insurance Requirements:

IT IS EXPRESSLY AGREED BETWEEN WISDOT AND THE CONTRACTOR THAT THE FAILURE OF WISDOT TO REQUIRE OR VERIFY COMPLETE AND TIMELY PERFORMANCE OF THE CONTRACTOR'S OBLIGATIONS UNDER THIS CONTRACT SHALL NOT BE A WAIVER BY WISDOT OF ANY RIGHT OF WISDOT TO REQUIRE THE CONTRACTOR TO COMPLY WITH THESE INSURANCE REQUIREMENTS AND/OR TO SEEK DAMAGES BECAUSE OF THE CONTRACTOR'S FAILURE TO COMPLY WITH THE INSURANCE REQUIREMENTS IN THIS CONTRACT.

18. Audits. Contractor agrees that the WisDOT, the OCIP administrator, and/or any OCIP ensurer may audit Contractor's or any of its Subcontractor's Project payroll records, books and records, insurance coverage's, insurance cost information, or any other information that Contractor provides to the WisDOT, the OCIP administrator, or the OCIP ensurers to confirm their accuracy and to assure that costs of OCIP coverage's are not included in any payment for the work.

19. The WisDOT's Election to Modify or Discontinue OCIP. The WisDOT may, for any reason, modify the OCIP coverage's, discontinue the OCIP, or request that Contractor or any of its Subcontractors withdraw from the OCIP upon thirty (30) days written notice. Upon such notice Contractor and/or one or more of its Subcontractors, as specified by the WisDOT in such notice, shall obtain and thereafter maintain at the WisDOT's expense, Contractor Maintained Coverages (or a portion thereof as specified by the WisDOT) of the OCIP coverage's. The form, content, limits of liability, cost, and the ensurer issuing such replacement insurance shall be subject to the WisDOT's approval.

20. Withhold of Payments. The WisDOT may withhold from any payment owing to Contractor the costs of OCIP coverage's if included in a request for payment. In the event the WisDOT audit of Contractor's records and information as permitted in the Contract, this special provision, or other contract documents reveals a discrepancy in the insurance, payroll, safety, or any other information required by the contract documents to be provided by Contractor to the WisDOT, or to the OCIP administrator, or reveals the inclusion of costs of OCIP coverage's in any payment for the work, the WisDOT will have the right to full deduction from the Contract Price of all such costs of OCIP coverage's and all audit costs. Audit costs will include but not be limited to the fees of the OCIP administrator, and the fees of attorneys and accountants conducting the audit and review. If the Contractor or its Subcontractors fail to timely comply with the provisions of this special provision or the requirements of the Insurance Manual, the WisDOT may withhold any payments due Contractor and its Subcontractors until such time as they have performed the requirements of this special provision. Such withholding by the WisDOT will not be deemed to be a default hereunder.

21. Waiver of Claim and Waiver of Subrogation:
Where permitted by law, Contractor hereby waives all rights of recovery under subrogation because of deductible clauses, inadequacy of limits of any insurance policy, limitations or exclusions of coverage, or any other reason against the WisDOT, the State of Wisconsin and any of its Agencies or Officer's, Agents or employees including without limitation, the OCIP administrator, its or their officers, agents, shareholders or employees of each, if any, and any other Contractor or Subcontractor performing work or rendering services on behalf of the WisDOT in connection with the planning, development and construction of the Project, and Contractor shall require that all Contractor maintained insurance coverage related to the work include clauses providing that each ensurer shall waive all of its rights of recovery by subrogation for claims described above.

22. Waiver of Subrogation. Where permitted by law, Contractor shall also require that all Contractor maintained insurance coverage related to the work include clauses providing that each ensurer shall waive all of its rights of recovery by subrogation against the WisDOT, the State of Wisconsin and any of its Agencies or Officer's, Agents or employees including without limitation, the OCIP administrator, its or their officers, agents, shareholders or employees of each, if any. Contractor shall require similar written express waivers and insurance clauses from each of its Subcontractors. A waiver of subrogation shall be effective as to any individual or entity even if such individual or entity (a) would otherwise have a duty of indemnification, contractual or otherwise, (b) did not pay the insurance premium directly or indirectly, and (c) whether or not such individual or entity has an insurable interest in the property damaged.

23. Conflicts. In the event of a conflict, the provisions of this special provision shall govern, then the provisions of the contract and its other related contact documents, then the provisions of the Insurance Manual.

24. Safety. Contractor shall be solely responsible for safety on the Project and safety relating to the Work. Contractor shall establish a safety program that, at a minimum, complies with all local, state and federal safety standards, and any safety standards established by the WisDOT for the Project, including the Project Safety and Health Plan Manual.

24. Clearing and Grubbing, Emerald Ash Borer.

This applies to projects in the emerald ash borer (EAB) quarantined zones to include Fond du Lac, Kenosha, Milwaukee, Ozaukee, Racine, Sheboygan, Washington and Waukesha counties.

Supplement standard spec 201.3 with the following:

The emerald ash borer (EAB) has resulted in a quarantine of ash trees (*Fraxinus sp.*) by the Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP) and the Wisconsin Department of Natural Resources (DNR).

Ash trees species attacked by emerald ash borer include the following:

(a) Green ash (F. pennsylvanica) is found throughout the state, but is most common in southern Wisconsin. It may form pure stands or grow in association with black ash, red maple, swamp white oak, and elm. It grows as an associate in upland hardwood stands, but is most common in and around stream banks, floodplains, and swamps.
(b) Black ash (F. nigra) is distributed over the entire state but is most frequently found in northern Wisconsin. It is most common in swamps, but is also found in other wet forest types.
(c) Blue ash (F. quadrangulata) is a threatened species that is currently found only at a few sites in Waukesha County. The species is at the edge of its range in Wisconsin, but is common in states farther south. The species is not of commercial importance. Blue ash twigs are 4-sided.
(d) White ash (F. americana) tends to occur primarily in upland forests, often with Acer saccharum.

The quarantine of ash trees includes all horticultural cultivars of the species listed above.

Note that blue ash twigs are 4-sided. All other Wisconsin ash trees have round stems. Also, Mountain ash (*Sorbus americana and S. decora*) is not a true ash and is not susceptible to EAB infestation.

The contractor shall be responsible for hiring a certified arborist to identify all ash trees that will be cleared and grubbed for the project. In addition, prior to scheduled clearing and grubbing activities, the arborist shall mark all ash trees with florescent lime flagging tied around the trunk perimeter.

Follow and obey the following Wisconsin Department of Agriculture, Trade, and Consumer Protection order:

ATCP 21.17 Emerald ash borer; import controls and quarantine.

Importing or Moving Regulated Items from Infested Areas; Prohibition.
Except as provided in subparagraph (3), no person may do any of the following:

(a) Import a regulated item under sub. (2) into this state if that item originates from an emerald ash borer regulated area identified in 7CFR 301.53-3.

(b) Move any regulated item under sub. (2) out of an emerald ash borer regulated area that is identified in 7CFR 301.53-3 and located in this state.

Note: the United States Department of Agriculture-Animal and Plant Health Inspection Service (USDA-APHIS) periodically updates the list of regulated areas in 7CFR 301.53-3. Subsection (1) applies to new regulated areas as those areas are identified in the CFR.

Regulated Items. The following are regulated items for purposes of subparagraph (1):

The emerald ash borer, Agrilus planipennis Fairmaire in any living stage.

Ash trees.

Ash limbs, branches, and roots.

Ash logs, slabs or untreated lumber with bark attached.

Cut firewood of all non-coniferous species.

Ash chips and ash bark fragments (both composted and uncomposted) larger than one inch in diameter.

Any other item or substance that may be designated as a regulated item if a DATCP pest control official determines that it presents a risk of spreading emerald ash borer and notifies the person in possession of the item or substance that it is subject to the restrictions of the regulations.

Regulatory Considerations
The quarantine means that ash wood products may not be transported out of the quarantined area.

Clearing and grubbing includes all ash trees that are to be removed from within the project footprint. If ash trees are identified within clearing and grubbing limits of the project, the following measures are required for the disposal:

Chipped Ash Trees
May be left on site if used as landscape mulch within the project limits. If used as mulch on site, chips may not be applied at a depth greater than standard mulch applications as this will impede germination of seeded areas.

May be buried on site within the right-of-way in accordance to standard spec 201.3 (14).

May be buried on adjacent properties to projects within the quarantined zone with prior approval of the engineer in accordance to standard spec 201.3 (15).

May be trucked to a licensed landfill within the quarantined zone with the engineer's approval in accordance to standard spec 201.3 (15).

Burning chips is optional if in compliance with standard spec 201.3.

Chips must be disposed of immediately if not used for project mulching and may not be stockpiled and left on site for potential transport by others. Chips may be stockpiled temporarily if they will be used for project mulching and are not readily accessible to the public.

Chipper equipment must be cleaned following post-chipping activities to ensure no spread of wood chip debris into non-quarantined counties.

Ash logs, Branches, and Roots
May be buried without chipping within the existing right-of-way or on adjacent properties in accordance to standard spec 201.3 (14)(15).

May be trucked to a licensed landfill within the quarantined zone with the engineer's approval in accordance to standard spec 201.3 (15).

Burning is optional if in compliance with standard spec 201.3.

Ash logs, branches, and roots must be disposed of immediately and may not stockpiled.

All additional costs will be incidental to clearing and grubbing items.

Do not bury or use mulch in an area that will be disturbed again during later phases of the project.

Anyone moving firewood or ash products from the state or these counties is subject to state and federal fines up to $1,000.00. All fines are the responsibility of the contractor. Obtain updated quarantine information at the DNR Firewood Information Line at (800) 303-WOOD.

Furnishing and Planting Plant Materials
Supplement standard spec 632.2.2 with the following:

Ash trees may be obtained from inside or outside the quarantine area and planted within the quarantined area. Ash trees from within the quarantine area may not be transported and planted into the non-quarantined area.

Updates for Compliance
Each year, as a service, the Wisconsin department of agriculture, trade and consumer protection distributes an updated federal CFR listing to nursery license holders and other affected persons in this state. More frequent updates, if any, are available on the Department of Agriculture, Trade, and Consumer Protection (DATCP) website at **www.datcp.state.wi.us** . Subsection (1) applies to new regulated areas as those areas are identified in the CFR, regardless of whether affected persons receive update notices from the DATCP. Persons may request update notices by calling (608) 224−4573, by visiting the DATCP website, or by writing to the following address:

Wisconsin Department of Agriculture, Trade and Consumer Protection
Division of Agricultural Resource Management
P.O. Box 8911
Madison WI 53708−8911

Regulated Items
More frequent updates, if any, are available on the DATCP website at **www.datcp.state.wi.us** . Subsection (1) applies to new regulated areas as those areas are identified in the CFR, regardless of whether affected persons receive update notices from DATCP. Persons may request update notices by calling (608) 224−4573, by visiting the DATCP website, or by writing to the above address.

25. Notice to Contractor – Traffic Signal Equipment Lead Time.

Lead time for traffic signal equipment specified for this project has been ranging from 12 weeks to 18 weeks. Order equipment as soon as possible to assure the equipment is procured in a timely fashion and, therefore, installed, inspected, and ready for turn-on at the required date.

26. Notice to Contractor - Wisconsin Lutheran College Stadium Conduit Installation.

Install conduit and fiber to the Wisconsin Lutheran College (WLC) stadium facility as shown on the plans. The conduit and fiber connect from near USH 45 at the Swan Boulevard Bridge and extend to the WLC stadium with over 300 feet of new conduit. The contractor may access the WLC property as required to complete the work. Coordinate installation of conduit and fiber into the existing conduit system with the WLC.

Restoration of land to its original condition with topsoil, fertilizer, seed, and erosion mat is incidental to the conduit and fiber installation.

WLC will take ownership of the conduit and fiber beyond CV184BV after installation.

27. Notice to Contractor – OCIP Exclusions.

The Owner Controlled Insurance Program (OCIP) insurance coverage excludes environmental/abatement work, including but not limited to hazardous materials/chemicals, lead and other materials considered hazardous – see Article – Owner Controlled Insurance Program for additional information. Environmental/abatement work must be performed by a qualified contractor who will not be enrolled in the OCIP. The qualified subcontractor must carry Construction Pollution Liability insurance with limits of at least $1,000,000 per Occurrence and $2,000,000 Aggregate.

Only payroll from non-environmental work shall be reported under the OCIP. All payroll generated from environmental/abatement work should not be reported.

Questions regarding this or any other aspects of OCIP should be directed to Kevin Gehrmann at (608) 267-7722, or Kevin.Gehrmann@dot.wi.gov.

28. CPM Progress Schedule.

Submit a CPM Progress Schedule and updates in accordance to standard spec 108.4.4, and as hereinafter provided.

To ensure compatibility with the Master Program Schedule, use the latest version of Primavera Project Planner (P6), by Primavera Systems, Inc., Bala Cynwyd, PA to prepare the Initial CPM Progress Schedule, Monthly CPM Progress Updates and other CPM Progress Revisions requested by the engineer.

Within five business days after award, the department will provide its current standard Work Breakdown Structure and activity codes to use to develop the Initial CPM Progress Schedule.

Designate a Project Scheduler who will be responsible for scheduling the Work and submit for approval a professional resume describing a minimum of three years of scheduling experience on interstate-highway reconstruction work of similar size and complexity, including recent experience with P6.

With each Monthly CPM Progress Schedule Update also include:

1. Activities underway and as-built dates for the past month.
2. On a monthly basis, agree on the as-built dates with the department depicted in the Monthly CPM Progress Schedule Update or document any disagreements. Use the as-built dates from the Monthly CPM Progress Schedule Update for the month when updating the CPM schedule.
3. Provide actual as-built dates for completed activities through final acceptance of the project.

29. Pay Plan Quantity.

A Bid Items Designated as Pay Plan Quantity

Replace standard spec 109.1.1.2 with the following:

If the schedule of items designates a bid item with a **P** in the title, the department will not measure that bid item. The department will use the plan quantity, the approximate quantity shown on the schedule of items, for payment unless a contract revision affects a designated bid item.

If the engineer revises the contract under standard spec 104.2, the department will adjust the quantity of designated items that are affected by the revised work. The engineer will adjust the affected quantity, with a contract modification as defined in standard spec 101.3, regardless of the magnitude of the revised work, which may result in either an

increase or a decrease from the quantity shown on the schedule of items. The department will measure revised work as specified in standard spec 109.1.1.1. If the engineer revises the contract to eliminate a designated item, the engineer will not pay for the designated item, except as specified in standard spec 109.5.

The approximate quantity shown on the schedule of items for a designated item is for information only and only an estimate. The engineer makes no guarantee that the quantity, which can be determined by computations based on contract information, will equal the approximate quantity shown on the schedule of items. The engineer will not make a quantity adjustment for discrepancies.

30. 3D Model Data.

The department will provide for Project 1060-33-73 for informational purposes only (see following disclaimer) detailed 3D proposed and existing model data or portions of data which may include: roadways, temporary roadways, topography, grading, temporary grading, drainage, temporary drainage, structures, temporary structures, utilities, abandoned utilities, FTMS, signals, temporary signals, signs, temporary signs, lighting, temporary lighting, pavement markings, landscaping, wetlands, waterways, railways, geotech soil borings, parcels, fencing, and survey monumentation. The department will provide the above data or portions of the 3D model data electronically consisting of electronic 2D/3D files containing features, points, reference lines, breaklines, area extents lines, profiles, LandXML v1.2 files and/or TIN Civil 3D surfaces in Autocad 2012 dwg files with horizontal datum - NAD-83 (GRS-1980) (2007), vertical datum - NAVD-1988 (2007), and coordinate projection - Wisconsin County Coordinate System in U.S. survey ft. The department will provide the model data prior to project LET date within 5 business days of a contractor request submitted as follows: by email to jeff.bohen@dot.wi.gov.

The department is providing, by agreement with contractor and subcontractors, materials stored electronically. The parties recognize that data, plans, specifications, reports, documents, or other information recorded on or transmitted as electronic media (including but not necessarily limited to "CAD, CIM, BIM, GIS or other electronic documents") are subject to undetectable alteration, either intentional or unintentional, due to, among other causes, transmission, conversion, media degradation, software error, or human alteration. Accordingly, all such documents are provided to the parties for informational purposes only and not as an end product or as a record document. Any reliance thereon is deemed to be unreasonable and unenforceable. The signed and/or stamped hard copy of the engineer's Instruments of Service plans, specifications and estimates or other contract documents are the only true contract documents of record.

31. Milwaukee County Transit System.

The Milwaukee County Transit System (MCTS) maintains the bus shelter at the sherrif's lot adjacent to Swan Boulevard. Notify MCTS at least ten days prior to beginning work. The MCTS contact is Mr. Dave Ziarek, (414) 343-1764.

MCTS will remove their existing bus stop signs and shelters. Notify MCTS at least ten days in advance. MCTS will install new bus stop signs and shelters prior to the opening of traffic on the new roadway pavement. Notify MCTS at least ten days prior to opening new pavement to vehicular traffic.

Coordinate with MCTS to provide temporary bus stops at locations approved by MCTS and the engineer. Provide a safe boarding zone that is clear of debris and ADA compliant at each temporary bus stop. MCTS will install temporary bus stop signs if notified at least ten days in advance.

32. Material and Equipment Staging.

Submit a map showing all proposed material stockpile or equipment storage locations to the engineer 14 days prior to either preconstruction or proposed use, whichever comes first. Identify the specific purposes for the location. Obtain written permits from the property owner, and submit two copies to the engineer before use. Do not stockpile or store materials or equipment on wetlands.

33. Subletting the Contract.

Replace standard spec 108.1.1 (3) with the following:

If proposing to have a party other than a subcontractor perform work, notify the engineer and submit details of this arrangement in writing. The engineer will determine if that arrangement constitutes subcontracting. Submit copies of all other agreements between any parties regarding the performance of work under the contract with the Request to Sublet.

34. Force Account.

Supplement standard spec 109.4.5.1 (3)1 *with the following:*

Include accumulation of wages to date for each employee performing force account work and identify allowable Federal Unemployment Tax (FUTA) and State Unemployment Tax (SUTA) multipliers.

35. Removing Concrete Barrier.

Supplement standard spec 204.3.2.2 with the following:

Under the Removing Concrete Barrier bid item, remove barrier to the depth and location the plans show. Removal includes full-width and full-height vertical saw cutting. Removal includes sawing per standard spec 690.

Supplement standard spec 204.5.1(2) with the following:

Payment for Removing Concrete Barrier is full compensation for full-width and full-height saw cutting of existing barrier and sludge removal.

36. QMP Subgrade.

A Description

This special provision describes requirements for subgrade materials within the roadway as defined in standard spec 101.3. Conform to standard spec 207 as modified in this special provision for all work within the roadway and railway foundation at the following locations:

- Swan Boulevard and USH 45

Provide and maintain a quality control program. A quality control program is defined as all activities, including process control inspection, sampling and testing, documentation, and necessary adjustments in the process that are related to the construction of subgrade which meets all the requirements of this provision.

Chapter 8 of the department's construction and materials manual (CMM) provides additional detailed guidance for QMP work and describes sampling and testing procedures. The contractor may obtain the CMM from the department's web site at:
http://roadwaystandards.dot.wi.gov/standards/cmm/index.htm

B Materials

B.1 Quality Control Plan

Submit a comprehensive written quality control plan to the engineer at or before the pre-construction meeting. Do not perform grading work before the engineer reviews and accepts the plan. Construct the project as the plan provides.

Do not change the quality control plan without the review and approval of the engineer. Update the plan with changes as they become effective. Provide a current copy of the plan to the engineer and post in the contractor's laboratory as changes are adopted. Ensure that the plan provides the following elements:

1. An organizational chart with names, telephone numbers, current certifications and/or titles, and roles and responsibilities of QC personnel.
2. The process used to disseminate QC information and corrective action efforts to the appropriate persons. Include a list of recipients, the communication process that will be used, and action time frames.
3. An outline for resolving a process control problem. Include responsible personnel, required documentation, and appropriate communication steps.
4. Location of the QC laboratory, retained sample storage, and control charts and other documentation.

5. A summary of the locations and calculated quantities to be tested under this provision.
6. An explanation regarding the basis of acceptance for material that cannot be tested by nuclear methods due to a high percentage of oversized particles.

B.2 Personnel

Perform the quality control sampling, testing, and documentation required under this provision using HTCP certified technicians. Have a grading technician certified under HTCP at level I present at the site during all subgrade preparation, fill placement, compaction, and nuclear testing activities. Have a nuclear density technician certified under HTCP at level I perform field density and field moisture content testing.

B.3 Laboratory

Perform quality control testing in a department-qualified laboratory. Obtain information on the Wisconsin laboratory qualification program from:

Materials Laboratory
3502 Kinsman Boulevard
Madison, Wisconsin 53704-2583
Telephone: (60) -246-7938
http://www.dot.state.wi.us/business/engrserv/lab-qualification.htm

B.4 Equipment

Furnish the necessary equipment and supplies for performing quality control testing. Ensure that all testing equipment conforms to the equipment specifications applicable to the required testing methods. The engineer may inspect the measuring and testing devices to confirm both calibration and condition. Calibrate all testing equipment according to the CMM and maintain a calibration record at the laboratory.

Furnish nuclear gauges from the department's approved product list at http://www.atwoodsystems.com/materials. Ensure that the gauge manufacturer or an approved calibration service calibrates the gauge within 12 months before using it on the project. Retain a copy of the calibration certificate with the gauge. Nuclear density gauge calibration verification is required daily when earthwork construction operations require testing under this special provision article. This calibration verification shall be performed using the Departments "Validator" apparatus which is located at the Zoo Interchange Construction Field Office: 2424 S. 102nd St., West Allis, Wisconsin 53227. The contractor must establish a standard gauge reading for the "Validator" using the ten test average method. The source emitter depth for calibration verification, in the direct transmission mode, will be determined by the engineer. This procedure will establish the "Validator" apparatus, as the contractor's project reference site.

Conform to ASTM D 2950 and CMM 8.15 for density testing and gauge monitoring methods. Perform nuclear gauge measurements using gamma radiation in the backscatter or direct transmission position. Perform each test for 4 minutes of nuclear gauge count time.

B.5 Soil Source Study

Conduct and submit a soil source study before beginning of grading operations. Ensure that this study identifies each distinct soil type on the project within the top 15 feet of cut areas and all borrow material. Provide the in-bank natural moisture content for each soil. Develop moisture-density curves for each identified soil type by utilizing AASHTO T 99 with a minimum of 5 individual points, and a zero air voids curve at a specific gravity of 2.65. If the specific gravity is not considered to be equal to 2.65, use the specific gravity considered appropriate for the material. Specific gravity tests may need to be performed to confirm the value used for generation of the zero air voids curve. Determine the maximum density and corresponding optimum moisture level for each soil type. Develop a site-specific family of Proctor curves for this contract from the completed soil source study and submit to the engineer for review and acceptance.

Perform characterization tests on each of the soil types selected for the soil source study. The tests for roadway (and railway) include AASHTO T 89 (ASTM D4318), AASHTO T 90 (ASTM D4318), AASHTO T 27 (ASTM C136), and AASHTO T 11 (ASTM C117). Classify each soil type selected according to the AASHTO soil classification system based on the characterization tests. Do not begin grading operations until the engineer accepts the soil source study.

Use the soil types identified in the soil source study with corresponding maximum densities and optimum moisture values to determine the compaction compliance on the project. Continue the soil source study in those areas of cuts greater than 15 feet that were not accessible during the initial study. Include data on additional soil types if project conditions change. Ensure that tests of additional soil types are complete and the engineer accepts the results before incorporating the material into the roadway foundation.

Split each Proctor sample and identify so as to provide comparison with the department's test results. Unless the engineer directs otherwise, retain the QC split samples for 14 calendar days and promptly deliver the department’s split samples to the department at:

Regional Materials Laboratory
935 S. 60th Street
West Allis, Wisconsin 53214
Telephone: (414) 266-1158

Retain and identify two representative samples of each Proctor. Submit one sample to the engineer. Retain one sample on site for use when performing textural identification.

B.6 Quality Control Documentation

B.6.1 Control Charts

Maintain separate control charts for the field density and field moisture content of each grading area. Designate grading areas within the project as follows:

1. Embankment portions of the project, except within 200 feet of bridge abutments.
2. Embankment within 200 feet of bridge abutments.
3. Subgrade cut portions of the project.

4. Embankment in pipe culvert, sewer and waterline trenches.
5. Structure and granular backfill placed at bridge abutments.
6. Embankments of the project where embankments are 20 feet or higher regardless of location to be known as special compaction area.

Ensure that all tests are recorded and become part of the project records. Plot required test results on the control charts. Include random and engineer-requested testing but only include the contractor's randomly selected QC test results in the 4-point running average. The contractor may plot other contractor-performed process control or informational tests on the control charts, but do not include them in 4-point running averages.

Post control charts in an engineer-approved location and update daily. Ensure that the control charts include the project number, the test number, each test element, the applicable control limits, the contractor's individual test results, the running average of the last 4 data points, and the engineer's quality verification test data points. Use the control charts as part of a process control system for identifying potential problems and assignable causes. Format control charts according to the CMM.

Submit control charts to the engineer in a neat and orderly manner within 10 business days after completing subgrade construction.

B.6.2 Records

Document all observations, inspection records, adjustments to fill placement procedures, soil changes, and test results daily. Note the results of the observations and inspection records as they occur in a permanent field record. Density test locations shall be identified by a specific test number and include horizontal and vertical control for reference as noted in Section B.7.1.

Provide copies of the field density and field moisture running average calculation sheets, the one-point Proctor tests, records of procedure adjustments, and soil changes to the engineer daily.

Submit original testing records to the engineer in a neat and orderly manner within 10 business days after completing subgrade construction.

B.7 Contractor Testing

B.7.1 General

Have a grading technician certified under HTCP at level I present during all subgrade preparation, fill placement, compaction, and testing. Have a nuclear density technician certified under HTCP at level I perform the testing for field density and field moisture content. During subgrade construction, use sampling and testing methods identified in the CMM to perform the required tests at randomly selected locations at the indicated minimum frequency for each grading area.

Determine the cubic yards for testing based on a total load count system the engineer and contractor agree to.

For each test, provide the cubic yards represented and the test location to within 2 feet horizontally and 0.5 feet vertically. Use project stationing to determine horizontal location and grade stakes to determine vertical location.

Test areas of suspect compaction or areas which appear to be nonconforming as determined by the engineer.

B.7.2 Field Density and Field Moisture

Perform the field density and field moisture tests using the nuclear density meter method according to AASHTO T 310. Ensure that each field density test material is related to one of the specific soil types identified in the soil source study in determining the percent compaction. Use textural identification as the primary method of establishing this relationship. Utilize the representative samples retained from the soil source study when performing the textural identification. Use a coarse particle correction according to AASHTO T 224.

If field density and field moisture tests cannot be performed by the nuclear density method due to a high percentage of oversized particles as determined according to AASHTO T 99 for highway embankments, observe the placement of the embankment and document the basis of acceptance. Document daily quantities of untested embankment and locations where untested embankment is placed, and keep a cumulative quantity of untested embankment material for the duration of the project. Include the daily documentation and a summary of the cumulative quantity of untested embankment material with the project records.

B.7.3 One-Point Proctor

Obtain a representative sample of the fill material and test according to AASHTO T 272. Compare the sample to the curves developed in the soils source study to determine the maximum dry density and optimum moisture. Use the appendix for AASHTO T 272 as a guide in this determination.

B.7.4 Testing Frequency

B.7.4.1 Subgrade Embankment portions of the project, except within 200 Feet of bridge abutments

Perform the required tests at the following frequencies:

Test	Minimum Frequency
Field Density and Moisture (AASHTO T 310)	One per 2,000 cubic yards of fill per lift or one test per grading area per day whichever yields the most tests.
One-Point Proctor (AASHTO T 272)	One per 9,000 cubic yards or when a change in fill material occurs.

B.7.4.2 Subgrade Embankment Within 200 Feet of Bridge Abutments
Perform the required tests at the following frequencies:

Test	Minimum Frequency
Field Density and Moisture (AASHTO T 310)	One per 1,000 cubic yards of fill per lift or one test per grading area per day whichever yields the most tests.
One-Point Proctor (AASHTO T 272)	One per 9,000 cubic yards or when a change in fill material occurs.

B.7.4.3 Subgrade Cut
Perform the required tests at the following frequencies:

Test	Minimum Frequency
Field Density and Moisture (AASHTO T 310)	One test per 1,000 linear feet of cut or one test per cut area whichever yields the most tests. The testing will be completed at the finished subgrade elevation.

B.7.4.4 Subgrade Embankment in Pipe Culvert, Sewer and Waterline Trenches
Perform the required tests at the following minimum frequencies per trench run between structures. Test trenches individually at the frequency listed below. For example, lateral lines and trunk lines are to be considered individual trenches:

Test	Minimum Frequency
Field Density and Moisture (AASHTO T 310)	One test per 100 CY of backfill placed per lift or one test per day whichever yields the most tests.
One-Point Proctor (AASHTO T 272)	One per 3,000 cubic yards or when a change in fill material occurs.

B.7.4.5 Structure and Granular Backfill at Bridge Abutments
Perform the required tests at the following minimum frequencies:

Test	Minimum Frequency
Field Density and Moisture (AASHTO T 310)	One test per 2 feet of vertical backfill height per abutment.
One-Point Proctor (AASHTO T 272)	One per 3,000 cubic yards or when a change in fill material occurs.

B.7.4.6 Embankments of the project where embankments are 20 feet or higher regardless of location to be known as special compaction area
Perform the required tests at the following minimum frequencies but exclude MSE wall backfill:

Test	Minimum Frequency
Field Density and Moisture (AASHTO T 310)	One per 2,000 cubic yards of fill per lift or one test per grading area per day whichever yields the most tests.
One-Point Proctor (AASHTO T 272)	One per 6,000 cubic yards or when a change in fill material occurs.

B.7.5 Compaction Zones

B.7.5.1 Subgrade Embankment portions of the project, except within 200 Feet of bridge abutments

Embankment material placed within 6 feet of the finished subgrade elevation is classified as upper zone material. Material placed more than 6 feet below the finished subgrade elevation is classified as lower zone material.

B.7.5.2 Subgrade Embankment Within 200 Feet of Bridge Abutments

All embankment material placed within 200 feet of bridge abutments is subject to the quality controls for upper zone material.

B.7.5.3 Subgrade Cut

Subgrade material in cut areas is subject to the quality controls for upper zone material.

B.7.5.4 Subgrade Embankment in Culvert Pipe Trenches

Material placed within culvert pipe trenches is subject to the quality controls for the zone that the material is located in.

B.7.5.5 Structure and Granular Backfill at Bridge Abutments

All backfill material placed adjacent to bridge abutments is subject to the quality controls for upper zone material.

B.7.5.6 Embankments of the project where embankments are 20 feet or higher regardless of location to be known as special compaction area

All embankment material placed where embankments are 20 feet or higher regardless of location is subject to the quality controls for upper zone material. Exclude MSE wall backfill.

For this contract, the station ranges where embankments are 20 feet or higher and require higher levels of compaction (special compaction) are as follows:

- Station 184BV+00 TO Station 185BV+14

Also see plan notes identifying special compaction

B.7.6 Control Limits

B.7.6.1 Field Density

The lower control limit for field density measurements in the upper zone is a minimum of 95.0% of the maximum dry density as determined by AASHTO T 99 or T 272 for the 4-point running average and a minimum of 92.0% of the maximum dry density for any individual test.

The lower control limit for field density measurements in the lower zone is a minimum of 93.0% of the maximum dry density as determined by AASHTO T 99 or T 272 for the 4-point running average and a minimum of 90.0% of the maximum dry density for any individual test. The lower zone lower control limit for field density measurements is a minimum of 93.0% of the maximum dry density as determined by AASHTO T 99 or T 272 for the 4-point running average and a minimum of 92.0% of the maximum dry density for any individual test.

B.7.6.1.1 Field Density

Embankments of the project where embankments are 20 feet or higher regardless of location to be known as special compaction area excluding MSE wall backfill

The lower control limit for field density measurements in the special compaction area is a minimum of 98.0% of the maximum dry density as determined by AASHTO T 99 or T 272 for the 4-point running average and a minimum of 95.0% of the maximum dry density for any individual test.

B.7.6.2 Field Moisture Content

The upper control limit for the field moisture content in the upper and lower zones is 105.0% of the optimum moisture as determined by AASHTO T 99 or T 272 for the 4-point running average.

The lower control limit for the field moisture content in the upper and lower zones is 85.0% of the determined optimum moisture for the 4-point running average. There is no lower control limit for the field moisture of material having less than 5% passing the No. 200 sieve.

B.7.6.2.1 Field Moisture Content

Embankments of the project where embankments are 20 feet or higher regardless of location to be known as special compaction area excluding MSE wall backfill

The upper control limit for the field moisture content in the special compaction area is 105.0% of the optimum moisture as determined by AASHTO T 99 or T 272 for the 4-point running average. The lower control limit for the field moisture content in the special compaction area is 90% of the determined optimum moisture for the 4-point running average.

B.7.7 Corrective Action

Notify the engineer if an individual field density test falls below the individual test control limit. The subgrade in this area is unacceptable. Perform corrective actions, acceptable to the engineer, to improve the density of the subgrade material. After corrective action, perform a randomly located retest within the represented quantity to ensure that the material is acceptable. Each embankment lift shall be tested for compaction compliance before the next lift is placed.

Notify the engineer if the field density or field moisture running average point falls below the running average control limit for field density or outside the control limits for field moisture. The subgrade in this area is unacceptable. Perform corrective actions, acceptable to the engineer, to improve the quality of the material represented by the running average point. Retest each corrected area at a new random location within it's represented quantity and determine a new 4-point running average. If the new running average is not acceptable, perform further corrective actions and retest at new random locations.

If the contractor's control data is proven incorrect resulting in a field density or field moisture point falling below the control limit for field density or outside the control limits for field moisture, the subgrade is unacceptable. Employ the methods described above for unacceptable material.

B.8 Department Testing

B.8.1 General

The department will conduct verification testing to validate the quality of the product and independent assurance testing to evaluate the sampling and testing. The department will provide the contractor with a listing of names and telephone numbers of all verification and independent assurance personnel for the project.

The department will provide field density and field moisture test results to the contractor on the day of testing. Test results from Proctor split samples will be provided to the contractor within 7 business days after the sample has been received by the department.

B.8.2 Verification Testing

The department will have an HTCP technician, or ACT under the direction of a certified technician, perform QV sampling and testing. Department verification testing personnel must meet the same certification level requirements specified for contractor testing personnel for each test being verified. The department will notify the contractor before testing so the contractor can observe QV testing.

The department will test field density and field moisture randomly at locations independent of the contractor's QC work. The department will use split samples for verification of Proctor testing. In all cases, the department will conduct the verification tests in a separate laboratory and with separate equipment from the contractor's QC tests.

The department will perform verification testing as follows:

1. The department will conduct verification tests on Proctor split samples taken by the contractor. These samples may be from the Soil Source Study or the one-point Proctor or sample locations chosen by the engineer from anywhere in the process. The minimum verification testing frequency is one per 90,000 cubic yards, with at least one for each soil type identified in the Soil Source Study.
2. The department will test the first split sample obtained by the contractor for the one-point Proctor. The engineer may select any contractor-retained sample for verification testing.
3. The department will conduct at least one verification test for field density and field moisture per 30,000 cubic yards.

Plot verification tests on the contractor's quality control charts as specified in B.6.1. Do not include verification tests in the 4-point running average.

If verification tests are within specified control limits, no further action is required. If verification tests are not within specified control limits, the engineer and contractor will jointly investigate any testing discrepancies. The investigation may include additional testing as well as review and observation of both the department's and contractor's sampling and testing procedures and equipment. Both parties will document all investigative work.

Correct all deficiencies. If the contractor does not respond to an engineer request to correct a deficiency or resolve a testing discrepancy, the engineer may suspend grading work until action is taken. Resolve disputes as specified in B.9.

B.8.3 Independent Assurance Testing

Independent assurance is unbiased testing the department performs to evaluate the department's verification and the contractor's QC sampling and testing including personnel qualifications, procedures, and equipment. The department will perform the independent assurance review according to the department's independent assurance program, which may include one or more of the following:

1. Split sample testing.
2. Proficiency sample testing.
3. Witnessing sampling and testing.
4. Test equipment calibration checks.
5. Reviewing required worksheets and control charts.
6. Requesting that testing personnel perform additional sampling and testing.

Plot the independent assurance tests on the contractor's quality control charts as specified in B.6.1. Do not include independent assurance tests in the 4-point running average.

If the department identifies a deficiency, and after further investigation confirms it, correct that deficiency. If the contractor does not correct or fails to cooperate in resolving identified deficiencies, the engineer may suspend grading work until action is taken. Resolve disputes as specified in B.9.

B.9 Dispute Resolution

The engineer and contractor should make every effort to avoid conflict. If a dispute between some aspect of the contractor's and the engineer's testing program does occur, seek a solution mutually agreeable to the project personnel. The department and contractor may review the data, examine data reduction and analysis methods, evaluate sampling and testing procedures, and perform additional testing. Use ASTM E 178 to evaluate potential statistically outlying data.

If the project personnel cannot resolve a dispute and the dispute affects payment or could result in incorporating nonconforming product, the department will use third party testing to resolve the dispute. The department's central office laboratory, or a mutually agreed on independent testing laboratory, will provide this testing. The engineer and contractor will abide by the results of the third party tests. The party in error will pay service charges incurred for testing by an independent laboratory. The department may use third party tests to evaluate the quality of questionable materials and determine the appropriate payment. The department may reject material or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

B.10 Acceptance

The department will accept the material tested under this provision based on the contractor QC tests unless it is shown through verification testing or the dispute resolution process that the contractor's test results are in error.

C (Vacant)

D (Vacant)

E Payment

Costs for all sampling, testing, and documentation required under this special provision are incidental to the work. If the contractor fails to perform the work required under this special provision, the department may reduce the contractor's pay. The department will administer pay reduction under the Non-performance of QMP administrative item.

37. QMP Base Aggregate.

A Description

A.1 General

(1) This special provision describes contractor quality control (QC) sampling and testing for base aggregates, documenting those test results, and documenting related production and placement process changes. This special provision also describes department quality verification (QV), independent assurance (IA), and dispute resolution.

(2) Conform to standard spec 301, standard spec 305, and standard spec 310 as modified here in this special provision. Apply this special provision to material placed under all of the Base Aggregate Dense and Base Aggregate Open Graded bid items, except do not apply this special provision to material classified as reclaimed asphaltic pavement placed under the Base Aggregate Dense bid items.

(3) Do not apply this special provision to material placed under the Aggregate Detours, Salvaged Asphaltic Pavement Base, Breaker Run, Select Crushed, Pit Run, Subbase, or Riprap bid items.

(4) Provide and maintain a quality control program, defined as all activities related to and documentation of the following:
1. Production and placement control and inspection.
2. Material sampling and testing.

(5) Chapter 8 of the department's construction and materials manual (CMM) provides additional detailed guidance for QMP work and describes required sampling and testing procedures. The contractor may obtain the CMM from the department's web site at:

http://roadwaystandards.dot.wi.gov/standards/cmm/index.htm

A.2 Contractor Testing for Small Quantities

(1) The department defines a small quantity, for each individual Base Aggregate bid item, as a plan quantity of 9000 tons or less of material as shown in the schedule of items under that bid item.

(2) The requirements under this special provision apply equally to a small quantity for an individual bid item except as follows:
1. The contractor need not submit a full quality control plan but shall provide an organizational chart to the engineer including names, telephone numbers, and current certifications of all persons involved in the quality control program for material under affected bid items.
2. Divide the aggregate into uniformly sized sublots for testing as follows:

Plan Quantity	Minimum Required Testing
≤ 1500 tons	One test from production, load-out, or placement at the contractor's option[1]
> 1500 tons and ≤ 6000 tons	Two tests of the same type, either from production, load-out, or placement at the contractor's option[1]
> 6000 tons and ≤ 9000 tons	Three placement tests[2] [3]

[1] If using production tests for acceptance, submit test results to the engineer for review prior to incorporating the material into the work. Production test results are valid for a period of 3 years.

[2] For 3-inch material, obtain samples at load-out.

[3] If the actual quantity overruns 9000 tons, create overrun sublots to test at a rate of one additional placement test for each 3000 tons, or fraction of 3000 tons, of overrun.

3. No control charts are required. Submit aggregate load-out and placement test results to the engineer within one business day of obtaining the sample. Assure that all properties are within the limits specified for each test.
4. Department verification testing is optional for quantities of 6000 tons or less.

(3) Material represented by a sublot with any property outside the specification limits is nonconforming. The department may reject material or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

B Materials

B.1 Quality Control Plan

(1) Submit a comprehensive written quality control plan to the engineer at or before the pre-construction meeting. Do not place base before the engineer reviews and comments on the plan. Construct the project as that plan provides.

(2) Do not change the quality control plan without the engineer's review. Update the plan with changes as they become effective. Provide a current copy of the plan to the engineer and post in each of the contractor's laboratories as changes are adopted. Ensure that the plan provides the following elements:

1. An organizational chart with names, telephone numbers, current certifications and/or titles, and roles and responsibilities of QC personnel.
2. The process used to disseminate QC information and corrective action efforts to the appropriate persons. Include a list of recipients, the communication means that will be used, and action time frames.
3. A list of source and processing locations, section and quarter descriptions, for all aggregate materials requiring QC testing.
4. Test results for wear, sodium sulfate soundness, freeze/thaw soundness, and plasticity index of all aggregates requiring QC testing. Obtain this information from the region materials unit or from the engineer.
5. Descriptions of stockpiling and hauling methods.
6. Locations of the QC laboratory, retained sample storage, and where control charts and other documentation is posted.
7. An outline for resolving a process control problem. Include responsible personnel, required documentation, and appropriate communication steps.

B.2 Personnel

(1) Have personnel certified under the department's highway technician certification program (HTCP) perform sampling, testing, and documentation as follows:

Required Certification Level:	Sampling or Testing Roles:
Aggregate Technician IPP Aggregate Sampling Technician Aggregate Assistant Certified Technician (ACT-AGG)	Aggregate Sampling[1]
Aggregate Technician IPP Aggregate Assistant Certified Technician (ACT-AGG)	Aggregate Gradation Testing, Aggregate Fractured Particle Testing, Aggregate Liquid Limit and Plasticity Index Testing

[1] Plant personnel under the direct observation of an aggregate technician certified at level one or higher may operate equipment to obtain samples.

(2) A certified technician must coordinate and take responsibility for the work an ACT performs. Have a certified technician ensure that all sampling and testing is performed correctly, analyze test results, and post resulting data. No more than one ACT can work under a single certified technician.

B.3 Laboratory

(1) Perform QC testing at a department-qualified laboratory. Obtain information on the Wisconsin laboratory qualification program from:

Materials Management Section
3502 Kinsman Blvd.
Madison, WI 53704
Telephone: (608) 246-5388
http://www.dot.state.wi.us/business/engrserv/lab-qualification.htm

B.4 Quality Control Documentation

B.4.1 General

(1) Submit base aggregate placement documentation to the engineer within 10 business days after completing base placement. Ensure that the submittal is complete, neatly organized, and includes applicable project records and control charts.

B.4.2 Records

(1) Document all placement observations, inspection records, and control adjustments daily in a permanent field record. Also include all test results in the project records. Provide test results to the engineer within 6 hours after obtaining a sample. For 3-inch base, extend this 6-hour limit to 24 hours. Post or distribute tabulated results using a method mutually agreeable to the engineer and contractor.

B.4.3 Control Charts

(1) Plot gradation and fracture on the appropriate control chart as soon as test results are available. Format control charts according to CMM 8.30. Include the project number on base placement control charts. Maintain separate control charts for each base aggregate size, source or classification, and type.

(2) Provide control charts to the engineer within 6 hours after obtaining a sample. For 3-inch base, extend this 6-hour limit to 24 hours. Post or distribute charts using a method mutually agreeable to the engineer and contractor. Update control charts daily to include the following:

1. Contractor individual QC tests.
2. Department QV tests.
3. Department IA tests.
4. Four-point running average of the QC tests.

(3) Except as specified under B.8.2.1 for nonconforming QV tests, include only QC tests in the running average. The contractor may plot process control or informational tests on control charts, but do not include these tests, conforming QV tests, or IA tests in the running average.

B.5 Contractor Testing

(1) Test gradation, fracture, liquid limit and plasticity index during placement for each base aggregate size, source or classification, and type.

(2) Test gradation once per 3000 tons of material placed. Determine random sample locations and provide those sample locations to the engineer. Obtain samples after the material has been bladed, mixed, and shaped but before compacting; except collect 3-inch samples from the stockpile at load-out. Do not sample from material used to maintain local traffic or from areas of temporary base that will not have an overlying pavement. On days when placing only material used to maintain local traffic or only temporary base that will not have an overlying pavement, no placement testing is required.

(3) Split each contractor QC sample and identify it according to CMM 8.30. Retain the split for 7 calendar days in a dry, protected location. If requested for department comparison testing, deliver the split to the engineer within one business day.

(4) The engineer may require additional sampling and testing to evaluate suspect material or the technician's sampling and testing procedures.

(5) Test fracture for each gradation test until the fracture running average is above the lower warning limit. Subsequently, the contractor may reduce the frequency to one test per 10 gradation tests if the fracture running average remains above the warning limit.

(6) Test the liquid limit and plasticity index for the first gradation test. Subsequently, test the liquid limit and plasticity index a minimum of once per 10 gradation tests.

B.6 Test Methods

B.6.1 Gradation

(1) Test gradation using a washed analysis conforming to the following as modified in CMM 8.60:
Gradation..... AASHTO T 27
Material finer than the No. 200 sieve..... AASHTO T 11

(2) For 3-inch base, if 3 consecutive running average points for the percent passing the No. 200 sieve are 8.5 percent or less, the contractor may use an unwashed analysis. Wash at least one sample out of 10. If a single running average for the percent passing the No. 200 sieve exceeds 8.5 percent, resume washed analyses until 3 consecutive running average points are again 8.5 percent passing or less.

(3) Maintain a separate control chart for each sieve size specified in standard spec 305 or standard spec 310 for each base aggregate size, source or classification, and type. Set control and warning limits based on the standard specification gradation limits as follows:

1. Control limits are at the upper and lower specification limits.
2. There are no upper warning limits for sieves allowing 100 percent passing and no lower control limits for sieves allowing 0 percent passing.
3. Dense graded warning limits, except for the No. 200 sieve, are 2 percent within the upper and lower control limits. Warning limits for the No. 200 sieve are set 0.5 percent within the upper and lower control limits.
4. Open graded warning limits for the 1-inch, 3/8-inch, and No. 4 sieves are 2 percent within the upper and lower control limits. Upper warning limits for the No. 10, No. 40, and No. 200 sieves are 1 percent inside the upper control limit.

B.6.2 Fracture

(1) Test fracture conforming to CMM 8.60. The engineer will waive fractured particle testing on quarried stone.

(2) Maintain a separate fracture control chart for each base aggregate size, source or classification, and type. Set the lower control limit at the contract specification limit, either specified in another special provision or in table 301-2 of standard spec 301.2.4.5. Set the lower warning limit 2 percent above the lower control limit. There are no upper limits.

B.6.3 Liquid Limit and Plasticity

(1) Test the liquid limit and plasticity according to AASHTO T 89 and T 90.

(2) Ensure the material conforms to the limits specified in standard spec table 301-2.

B.7 Corrective Action

B.7.1 General

(1) Consider corrective action when the running average trends toward a warning limit. Take corrective action if an individual test exceeds the contract specification limit. Document all corrective actions both in the project records and on the appropriate control chart.

B.7.2 Placement Corrective Action

(1) Do not blend additional material on the roadbed to correct gradation problems.

(2) Notify the engineer whenever the running average exceeds a warning limit. When 2 consecutive running averages exceed a warning limit, the engineer and contractor will discuss appropriate corrective action. Perform the engineer's recommended corrective action and increase the testing frequency as follows:

1. For gradation, increase the QC testing frequency to at least one randomly sampled test per 1000 tons placed.
2. For fracture, increase the QC testing frequency to at least one test per gradation test.

(3) If corrective action improves the property in question such that the running average after 4 additional tests is within the warning limits, the contractor may return to the testing frequency specified in B.5.3. If corrective action does not improve the property in question such that the running average after 4 additional individual tests is still in the warning band, repeat the steps outlined above starting with engineer notification.

(4) If the running average exceeds a control limit, material starting from the first running average exceeding the control limit and ending at the first subsequent running average inside the control limit is nonconforming and subject to pay reduction.

(5) For individual test results significantly outside the control limits, notify the engineer, stop placing base, and suspend other activities that may affect the area in question. The engineer and contractor will jointly review data, data reduction, and data analysis; evaluate sampling and testing procedures; and perform additional testing as required to determine the extent of potentially unacceptable material. The engineer may direct the contractor to remove and replace that material. Individual test results are significantly outside the control limits if meeting one or more of the following criteria:

1. A gradation control limit for the No. 200 sieve is exceeded by more than 3.0 percent.
2. A gradation control limit for any sieve, except the No. 200, is exceeded by more than 5.0 percent.
3. The fracture control limit is exceeded by more than 10.0 percent.

B.8 Department Testing

B.8.1 General

(1) The department will conduct verification testing to validate the quality of the product and independent assurance testing to evaluate the sampling and testing. The department will provide the contractor with a listing of names and telephone numbers of all QV and IA personnel for the project, and provide test results to the contractor within 2 business days after the department obtains the sample.

B.8.2 Verification Testing

B.8.2.1 General

(1) The department will have an HTCP technician, or ACT working under a certified technician, perform QV sampling and testing. Department verification testing personnel must meet the same certification level requirements specified in B.2 for contractor testing personnel for each test result being verified. The department will notify the contractor before sampling so the contractor can observe QV sampling.

(2) The department will conduct QV tests of each base aggregate size, source or classification, and type during placement conforming to the following:

1. One non-random test on the first day of placement.
2. At least one random test per 30,000 tons, or fraction of 30,000 tons, placed.

(3) The department will sample randomly, at locations independent of the contractor's QC work, collecting one sample at each QV location. The department will collect QV samples after the material has been bladed, mixed, and shaped but before compacting; except, for 3-inch aggregates, the department will collect samples from the stockpile at load-out. The department will split each sample, test half for QV, and retain half.

(4) The department will conduct QV tests in a separate laboratory and with separate equipment from the contractor's QC tests. The department will use the same methods specified for QC testing.

(5) The department will assess QV results by comparing to the appropriate specification limits. If QV test results conform to the specification, the department will take no further action. If QV test results are nonconforming, add the QV to the QC test results as if it were an additional QC test.

B.8.3 Independent Assurance

(1) Independence assurance is unbiased testing the department performs to evaluate the department's QV and the contractor's QC sampling and testing including personnel qualifications, procedures, and equipment. The department will perform an IA review according to the department's independent assurance program. That review may include one or more of the following:

1. Split sample testing.
2. Proficiency sample testing.
3. Witnessing sampling and testing.

4. Test equipment calibration checks.
5. Reviewing required worksheets and control charts.
6. Requesting that testing personnel perform additional sampling and testing.

(2) If the department identifies a deficiency, and after further investigation confirms it, correct that deficiency. If the contractor does not correct or fails to cooperate in resolving identified deficiencies, the engineer may suspend placement until action is taken. Resolve disputes as specified in B.9.

B.9 Dispute Resolution

(1) The engineer and contractor should make every effort to avoid conflict. If a dispute between some aspect of the contractor's and the engineer's testing program does occur, seek a solution mutually agreeable to the project personnel. The department and contractor may review the data, examine data reduction and analysis methods, evaluate sampling and testing procedures, and perform additional testing. Use ASTM E 178 to evaluate potential statistically outlying data.

(2) Production test results, and results from other process control testing, may be considered when resolving a dispute.

(3) If the project personnel cannot resolve a dispute, and the dispute affects payment or could result in incorporating non-conforming product, the department will use third party testing to resolve the dispute. The department's central office laboratory, or a mutually agreed on independent testing laboratory, will provide this testing. The engineer and contractor will abide by the results of the third party tests. The party in error will pay service charges incurred for testing by an independent laboratory. The department may use third party test results to evaluate the quality of questionable materials and determine the appropriate payment. The department may reject material or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

C (Vacant)

D (Vacant)

E Payment

(1) Costs for all sampling, testing, and documentation required under this special provision are incidental to this work. If the contractor fails to perform the work required under this special provision, the department may reduce the contractor's pay. The department will administer pay reduction under the non-performance of QMP administrative item.

(2) For material represented by a running average exceeding a control limit, the department will reduce pay by 10 percent of the contract price for the affected Base Aggregate bid items listed in subsection A. The department will administer pay reduction under the Nonconforming QMP Base Aggregate Gradation or

Nonconforming QMP Base Aggregate Fracture Administrative items. The department will determine the quantity of nonconforming material as specified in B.7.2.

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38. QMP Drilled Shafts.

A General

Perform this work in accordance to the requirements of standard spec 501 and 502 except as deleted or additionally stipulated herein. This specification applies to all drilled shaft concrete placed under the following bid item:

SPV.0090.4320	Drilled Shaft Foundation 34.75-Inch
SPV.0105.4400	Trial Drilled Foundation Shaft

Provide and maintain a Quality Control Program. A quality control program is defined as all activities and documentation of: 1) mix design; 2) process control inspection; and 3) necessary adjustments related to the production of ready-mixed concrete which meets all requirements of the contract.

A.1 References

Standard spec 701 – General QMP Requirements – are intended to assist the contractor and the engineer in conducting quality control and verification for construction projects under the department's Quality Management Program.

A.2 Pre-Pour Meeting

Arrange a project meeting to discuss the placement of concrete on the project. Topics discussed shall include the schedule for concrete placement, the roles and responsibilities of the project personnel, the testing and quality control intentions, and the process for communicating quality control test results. Hold the meeting prior to the first placement of concrete. Ensure that representatives from all parties involved with the concrete work including contractor, sub-contractor, ready mix supplier, concrete testers, and project manager attend these meetings.

B Quality Control Program Requirements

B.1 Quality Control Plan

Submit a comprehensive written Quality Control Plan. Construction of the project shall be in accordance to the information provided in the plan. Submit the plan to the engineer for review and comment no later than two weeks prior to concrete placement. Concrete production shall not begin before the plan has been reviewed by the engineer. The contractor's Quality Control plan shall be updated with changes and reviewed by the engineer as they become effective. Post a current copy of the plan in each of the contractor's laboratories prior to concrete mix production and as changes are adopted. The plan shall provide, as a minimum, the following elements:

B.1.1 An organizational chart including names, telephone numbers, current certifications and/or titles, and roles and responsibilities of all those involved with the quality control program.

B.1.2 The process of communication by which quality control information will be disseminated to the appropriate persons**,** including materials suppliers. This shall include a list of recipients, the communication means that will be used, action time frames**,** and report formats.

B.1.3 Preliminary concrete mix design information that includes anticipated producers, manufacturers, and sources of mix materials, and the name and title of the person responsible for developing the mix design.

B.1.4 The locations of the quality control laboratories for mix design, aggregate testing, cylinder curing, concrete testing, and compressive strength testing. A description of the equipment provided for sampling and testing shall be included.

B.1.5 Aggregate information including production and handling operations; how contamination, segregation, and degradation will be minimized; and anticipated mix design gradations and limits.

B.1.6 The procedures and methods of delivery, storage and management of all mix materials.

B.1.7 Facilities, procedures, and controls used to produce a mix that is in accordance to the specifications and the mix design.

B.1.8 The equipment, times, and methods to deliver the concrete mix to the work site and delivery of the material to the point of placement.

B.1.9 The initial and routine equipment checks and documentation performed on scales, water meters, admixture dispensers; and delivery, placing, surfacing, and curing equipment.

B.1.10 The methods for monitoring and recording the materials used in each batch.

B.1.11 The equipment and procedures for concrete placement.

B.1.12 The procedures that will be employed to correct problems as they occur.

B.1.13 A description of the methods for finishing and curing concrete.

B.1.14 The types, standards, and frequency of production testing. As a minimum:

a. The number of tests performed for aggregate gradations, moisture and fines; air content, temperature, slump, and compressive strength in accordance to subsection B.7;
b. The corrective action procedures for results found to be outside of satisfactory limits for each type of test.

B.1.15 Define lot layouts for compressive strength evaluation.

B.1.16 Provisions for responding to applicable adverse weather conditions such as precipitation, and hot and/or cold weather placement.

B.2 Personnel Requirements

All contractor process control and quality control testing, data analysis and data posting shall be directly performed by a Certified Technician. All contractor process control and contractor acceptance sampling shall be performed or observed by a Certified Technician**.**

Certification shall be in accordance to the department's Highway Technician Certification Program. Technicians shall be certified as follows:

Required Technician Certification Level	Sampling, Testing and Documentation Required by Provision Section:
Aggregate Technician I or IPP Aggregate Sampler I (Sampling Only)	B.7.2
PCC Technician IA; Or Aggregate Technician I or IPP Aggregate Sampler I (Sampling Only)	B.7.3
PCC Technician I	B.7.4
Concrete Compressive Strength Tester	B.7.4
PCC Technician II	B.5

Note: PCC Technician II certification is only required for development of new laboratory mix designs. PCC Technician II certification is not required for submittal of an established mix design which is being exclusively qualified by past performance data.

A certified PCC Technician I shall be present at the work site for the entire duration of all concrete placements. The technician shall be prepared and properly equipped to perform tests as needed.

B.3 Laboratory Requirements

The concrete mix design, aggregate testing, cylinder curing, and compressive strength testing shall be performed at a department-qualified laboratory. Information on the Wisconsin Laboratory Qualification Program may be obtained from the Quality Management Section, Wisconsin Department of Transportation, Bureau of Technical Services, Truax Center, 3502 Kinsman Blvd., Madison Wisconsin 53704; telephone (608) 266-3246; or on the internet at www.dot.state.wi.us.

B.4 Equipment Requirements

Furnish the necessary equipment and supplies for performing quality control testing. The engineer shall be allowed to inspect the measuring and testing devices to confirm both calibration and condition. Calibrate all testing equipment in accordance to the Procedure Manual and maintain a record of calibration results at the laboratory.

B.5 Concrete Mix Design
Delete standard spec 501.2.5.3.4, 501.2.5.4.4, 501.3.2.1, 501.3.2.2, and 501.3.2.3 in their entirety. The maximum limit for the percentage of material passing the No. 200 (75 micron) sieve is deleted from standard spec 501.2.5.3.1 and 501.2.5.4.2.

B.5.1 Submittal and Review Procedures
At least 14 days prior to the start of concrete production, submit two copies of a Concrete

Mix Design Report to the engineer. The mix design shall be developed by an agent of a qualified laboratory as discussed in subsection B.3. The mix design cover sheet shall include signature blocks for both the contractor mix designer and the engineer. Prior to the engineer's review, the mix designer shall sign and date each copy attesting that all information in the report is accurate and true. The engineer will review, comment, sign and date each copy of the report. The engineer's signature will verify that the engineer had the opportunity to review the mix design, to check that it meets the concrete mix requirements, and to comment. One original signed copy will be kept by the engineer. The other copy will be returned to the contractor, within five business days of receiving the report.

B.5.2 Documentation
The mix design documentation shall ensure the materials used are in accordance to all the requirements described in standard spec 501.2 unless modified herein, or waived by the engineer. The documentation for the mix designs shall include:

1. Development information - test dates, the name and location of the laboratory used to develop the mix design;
2. Mix properties - material proportions, batch weights (masses), 28-day compressive strength, concrete air content;
3. Material information - type, brand, source;
4. Aggregate information – air correction factor, proposed gradation control limits; absorption, specific gravities, wear, soundness and freeze thaw (if required) test results.

B.5.3 Concrete Mix Physical Requirements
The compressive strength for the concrete mix design shall be qualified by adhering to the requirements of ACI Code 318 Chapter 5 subsections 5.3.1 through 5.3.3 and 5.5, either by laboratory testing or by previous field test data which utilized the same mix design. In either case, the data submitted shall demonstrate that the mix achieved the requirement for compressive strength of at least 80 percent within limits above the lower specification limit at 28 days, as described in subsection E.2.

Modify standard spec 501.3.1.1.3 and 502.2.2 as follows: Use Grade A or A-FA concrete for all concrete masonry in the drilled shaft.

Type I or Type I/II Portland cement shall both conform to all applicable physical and chemical requirements of standard spec 501.

For drilled shaft construction, use high compressive strength concrete, and relatively high cement content in the concrete mix with 590 to 675 pounds of cement per cubic yard. Additives or admixtures, when they are used, shall be clearly indicated. The concrete shall be a flowable, non-segregating concrete mix that does not exhibit rapid slump loss.

Unit Weight of Concrete, AASHTO T 121: Weight must be between 140 to 160 lb/ft^3.

Class C fly ash may be used as a partial replacement for Portland cement in all concrete. Class C fly ash may be used at a replacement ratio of not less than 1.0 pounds (1.0 kg) fly ash per 1.0 pounds (1.0 kg) cement, in such quantity so that fly ash content does not exceed 20% of the total cementitious material.

Fine and course aggregate shall conform to the requirements of standard spec 501.2.5 except as modified herein.

Fine aggregate shall conform to the following gradation requirements:

Sieve Size	**Percent Passing (by weight)**
3/8” (9.5 mm)	100
No. 4 (4.75 mm)	90 – 100
No. 16 (1.18 mm)	45 – 85
No. 50 (300 um)	5 – 30
No. 100 (150 um)	0 – 10
No. 200 (75 um)	0 – 3.5

Any chemical admixture(s) to be used, other than air-entraining agents or water reducers from the department approved list, must be approved in advance by the engineer and meet the requirements of AASHTO M 194, as documented by independent laboratory test reports.

The adjustment of dosage rates of concrete admixtures will be permitted without requiring a new mix design.

B.5.4 Development Facility

The mix design shall be developed by a qualified laboratory as described in subsection B.3. Laboratory mix designs shall be performed by technicians certified as PCC Technician II by the department’s Highway Technician Certification Program.

B.5.5 Mix Changes

Prepare modifications to a mix design, and submit to the engineer for review, prior to use. Modifications, that require review, include changes in: 1) the source of any material, 2)

the amounts of cementitious materials, 3) adjustment of fine to total aggregate greater than ±3 percent by weight (mass), or 4) the addition or deletion of admixtures.

B.6 Process Control Documentation

Document daily all observations, records of inspection, adjustments to the mix, and test results, as described herein. Note the results of observations and records of inspections, adjustments, or variances as they occur in a permanent field record and/or plot on the appropriate control chart. Record all test results according to the forms provided in the Procedure Manual, and include them as part of the project records. Provide the original testing records and control charts to the engineer in a neat and orderly manner within ten business days after completion of concrete production.

Control charts and a cylinder strength summary report shall be posted on the project in a location satisfactory to the engineer, and at the concrete production site. Keep the control charts and strength summary up to date on a daily basis.

Maintain linear control charts when required by the test reporting procedures. Only include test results of the contractor's schedule quality control tests as part of the four point running average plotted on the control charts. The test results of other testing performed by the contractor for process control or informational purposes may be plotted on the control charts, but shall not be used in calculating four point running averages.

As a minimum, identify on the control charts the project number, the test number, each test element, the applicable warning and control limits, the contractor's individual test results, the running average of the last four data points, and the engineer's verification and independent assurance test data points. Use the control charts as part of a process control system for identifying potential problems and assignable causes. The format of the control charts shall be according to the guidelines provided in the Procedure Manual.

B.7 Required Contractor Testing

B.7.1 General

Perform all quality control tests necessary to control the production and construction processes applicable to this special provision and as set forth in the Quality Control Plan. Perform the following tests at a frequency not less than that defined herein:

Aggregate Gradations	AASHTO T-11* and T-27*
Aggregate Materials Finer Than the No. 100 (0.150 mm) Sieve	AASHTO T 11*
Aggregate Moisture	AASHTO T 255*
Air Content	AASHTO T 152*
Slump	AASHTO T 119*
Temperature	ASTM C 1064
Strength	AASHTO T 22, T 23, T 141, M 201
Unit Weight of Concrete	AASHTO T 121

Weight must be between 140 to 160 lb/ft^3.

*As modified by the department (See WisDOT Construction and Materials Manual, Chapter 4).

The department reserves the right to periodically observe sampling and testing performed by the contractor, and to direct the contractor to take additional samples or make additional tests for evaluation by the department. All test results shall be available to the engineer for review at any time during normal working hours.

B.7.2 Aggregate Gradation Testing

B.7.2.1 Sampling and Testing Requirements

Randomly sample and test the individual aggregate gradations according to AASHTO T 11: Materials Finer Than the No. 100 (0.150 mm) Sieve in Mineral Aggregate by Washing as modified by the department, and AASHTO T 27: Sieve Analysis of Fine and Coarse Aggregates as modified by the department. All aggregate sampling shall be performed by a certified Aggregate Technician I or IPP, or Aggregate Sampling Technician. All testing and documentation shall be performed by a certified Aggregate Technician I or IPP. Testing should be performed as the aggregate is being produced. If the aggregate material was created previous to the contract, and aggregate production records are not available or not acceptable to the engineer, then sampling and testing shall be performed as the material is being used at the concrete production site.

When performed during aggregate production, sampling and testing shall be at a frequency not less than that listed below.

Daily Aggregate Production, or Use Rate (Tons or Mg) (Number of Tests Per Day)	Minimum Testing Frequency for Each Aggregate Stockpile
0-1000	1
1000-2000	2
2000+	3

When not performed during aggregate production, sampling and testing of aggregates during concrete production shall be at a frequency conforming to the following:

1. Perform at least one test for each 250 cubic yards (200 m^3) of cumulative concrete produced for WisDOT projects except, no more than two tests per day are required.
2. Perform at least one test per week.

Separate coarse and fine aggregate fractions shall each conform to the gradation limits documented in the contractor's Quality Control Plan for testing performed during aggregate production. Coarse and fine aggregates shall conform to the combined gradation limits documented in the contractor's Quality Control Plan for testing performed during concrete production.

Only the results of the randomly selected samples for quality control tests shall be included in determining the four point running average points.

Control limits for aggregate sieve sizes shall be as identified by the contractor in the contractor's Quality Control Plan. The aggregate gradation warning limits shall lie inside the upper and lower control limit values by one percentage point for all sieves except as follows:

1. For coarse aggregate for concrete, the upper warning limit on the material finer than No. 100 sieve (150 micron) shall be inside the control limit value by 0.2 percentage point.
2. For fine aggregate for concrete, the upper warning limit on the material finer than No. 200 sieve (75 micron) shall be inside the control limit value by 0.5 percentage point.
3. For the sieves which allow 100 percent of the material passing, there is no upper warning limit. For the sieves which allow zero percent of the material passing, there is no lower warning limit.

B.7.2.2 Documentation

Maintain standardized linear control charts, as described in subsection B.6, at the laboratory. Provide separate control charts for each aggregate stockpile for each control sieve that pertains to the type of material being produced. Record test results obtained by the contractor on the control charts the same day the tests are conducted. Provide additional documentation in accordance to subsection B.6.

B.7.2.3 Corrective Action

When the four point running average value approaches a warning limit, consider corrective action. Document the corrective action, if any; it shall become part of the project records.

Document whenever a four test moving average exceeds the warning limits. When a second consecutive running average value exceeds the warning limits, take corrective action. Corrective action shall continue until two consecutive average points are within the warning limits.

Notify the engineer whenever an individual test value exceeds a control limit. The material shall be considered non-conforming when the individual test result exceeds the control limit. The quantity of non-conforming material shall include the material of the first test result exceeding the control limit, continuing to, but not including, the material from the first subsequent test result that is within the control limits. Action regarding the disposition for non-conforming material shall be in accordance to standard spec 106.5.

B.7.3 Aggregate Sampling and Testing During Concrete Production

All aggregate sampling shall be performed by a certified Aggregate Technician I or IPP, PCC Technician IA, or Aggregate Sampling Technician. All aggregate testing and

documentation shall be performed by a certified Aggregate Technician I or IPP, or PCC Technician IA.

B.7.3.1 Aggregate Moisture Content

The moisture content of the fine and course aggregates shall be measured and recorded at a frequency conforming to the following:

1. Perform at least one measurement for each 60 cubic yards (50 m^3) of cumulative concrete produced for WisDOT projects except no more than one measurement per day is required unless mix conditions change.
2. Perform a minimum of one measurement per week.

Measurements shall be made in accordance to AASHTO T 255, Total Moisture Content of Aggregate by Drying. The tests may be performed in conjunction with and with the same sample as the AASHTO T 11 tests required in subsection B.7.1.

Whenever the moisture content of the fine or coarse aggregate changes by more than 0.5 percent, the batch weights (masses) shall be adjusted.

B.7.3.2 Material Finer than the No. 100 Sieve (150 microns)

B.7.3.2.1 Sampling and Testing

Measure and record the percent of material finer than the No. 100 sieve (150 microns) within the aggregate at frequency conforming to the following:

1. Perform at least one measurement for each 250 cubic yards (200 m^3) of cumulative concrete produced for WisDOT projects except no more than one measurement per day is required unless mix conditions change.
2. Perform a minimum of one measurement per week.

Perform tests in accordance to AASHTO T 11 as modified by the department and further defined in subsection B.7.2.1.

Document the tests in accordance to subsections B.7.1, B.7.2.1, and B.7.2.2, by developing a gradation control chart for material finer than the No. 100 (150 micron) sieve. The control limits shall be as defined in the contractor's Quality Control Plan or Mix Design Report. Only the results of the samples for quality control tests shall be included in determining the four point running average points.

B.7.3.2.2 Corrective Action

When the four point running average value approaches a warning limit, consider corrective action. Document the corrective action, if any; it shall become part of the project records.

Notify the engineer whenever a four test running average exceeds the warning limits. When a second consecutive running average value exceeds the warning limits, the contractor and engineer shall discuss a course of corrective action. The contractor shall perform the corrective action.

If the corrective action improves the property in question such that the new running average, after four additional individual tests, is within the warning limits, the contractor may continue production. If the correction does not improve the property, and the new running average stays in the warning band, repeat the steps outlined in the previous paragraph starting with notifying the engineer.

Notify the engineer whenever an individual test value exceeds the control limits. The material shall be considered non-conforming when the individual test result exceeds the control limit. The quantity of non-conforming material shall include the material of the first test result exceeding the control limit, continuing to, but not including, the material from the first subsequent test result that is within the control limits. Action regarding the disposition for non-conforming material shall be in accordance to standard spec 106.5.

B.7.4 Compressive Strength

Based on compressive strength tests, the department will apply pay adjustments on a lot-by-lot basis, and accept or reject concrete on a sublot-by-sublot basis. The department will make adjustments to the contract price based on the compressive strength results of contractor quality control concrete cylinders. The department will evaluate sublot material for removal and replacement based on the strengths of cores.

A Certified PCC Technician I shall perform all field sampling, cylinder fabrication and initial curing and handling. A Certified Concrete Compressive Strength Tester shall perform all compressive strength testing of cylinders and cores. A department qualified laboratory shall cure and test all cylinders and cores.

B.7.4.1 Lot and Sublot Requirements

Designate the location and size of all lots for the project prior to concrete placement. No single lot shall contain concrete of more than one mix design as defined in subsection B.5.5. A lot shall not exceed 1000 cubic yards. A lot may be all concrete of a given grade per project.

A lot shall be divided into sublots. Determine the location and size of all sublots in a lot before placement of concrete for the lot. Use whichever combination of the following criteria that results in the most sublots in a lot. A standard lot shall have:

- A minimum of one sublot per day per mix grade.
- A minimum of one sublot per 100 cubic yards of mix placed per day.
- A minimum of five sublots per lot.

Do not have more than one sublot per truckload of concrete.

A small lot with four or less sublots can occur due to one of the following conditions: 1) An unanticipated mix design change is made; 2) The total lot consists of less than 5 truckloads of material.

B.7.4.2 Sampling

Randomly choose a concrete sampling location in each sublot, using the procedures described in the Procedure Manual. Collect a fresh concrete sample at each location large enough to fabricate five, 6-inch by 12-inch (150 mm x 300 mm) cylinders; perform an air content test, a slump test, and a temperature test; and, if requested by the engineer, fabricate two companion compressive strength cylinders for department testing. Sample the concrete according to AASHTO T 141 and fabricate the compressive strength cylinders according to AASHTO T 23.

Mark each cylinder to identify the sublot it represents. Do not mark the sublot cylinders in the order of their fabrication or order of when they should be tested.

Fabricate a pair of companion cylinders, for department testing, at least once per lot from a sublot designated by the engineer. Fabricate these cylinders from the same concrete sample as the contractor's quality control cylinders for the sublot. Provide all materials, fabrication, initial curing and handling of these cylinders for up to three days following fabrication.

B.7.4.3 Concrete Cylinder Curing

For up to 48 hours after fabrication, provide initial curing of the strength cylinders fabricated by the contractor according to AASHTO T 23. Between 24 and 48 hours following fabrication, transport the specimens to a laboratory for standard curing according to AASHTO M 201.

B.7.4.4 Compressive Strength Testing

Perform compressive strength testing of the quality control cylinders according to AASHTO T 22. Randomly select one cylinder at 7 days to test for information only, and randomly select 1 cylinder at 28 days to test for information only.

The department will define the average strength of the three cylinders tested at 28 days after fabrication as the 28-day sublot average strength.

Test each cylinder to failure and record the compressive strength in pounds per square inch (MPa). The compressive strength test machine shall automatically record the date, time, rate of loading and maximum load of each strength cylinder. Provide a printout of this information for each cylinder to the engineer.

B.7.4.5 Removal and Replacement

The department will evaluate the material contained in a sublot for removal if the 28-day sublot average strength is lower than f'_c minus 500 pounds per square inch (3.5 MPa). The value of f'_c is the design stress shown in the plans. The department may assess further

penalty, remedial work, or require concrete removal and replacement only after a core evaluation is performed on the sublot material.

The engineer may choose a non-destructive method to perform an initial evaluation of the sublot's strength or proceed directly to a coring evaluation. Based on the results of nondestructive testing, the department may accept the sublot material at the previously determined pay for the lot, or have the contractor core the sublot.

For a core strength evaluation, remove 3 cores from the sublot in question. Sampling of the cores shall be according to AASHTO T 24. A Certified PCC Technician I shall perform or observe the core sampling. Determine the core locations to not interfere with structural steel. Coring locations are subject to approval by the engineer. Fill all core holes with non-shrink grout.

Hire an independent consultant to perform the core testing. Testing of the cores shall be according to AASHTO T 24, with the exception that cores from above-grade concrete elements which will be only superficially wet in service shall be air-cured and tested dry.

If the average compressive strength of the 3 cores is greater than or equal to 85 percent of f'_c, and no individual test result is less than 75 percent of f'_c the engineer will accept the sublot material at the previously determined pay for the lot. If the average compressive strength of the 3 cores is less than 85 percent of f'_c, or an individual test result is less than 75 percent of f'_c the engineer may require the contractor to remove and replace the represented material, or the engineer may assess a penalty of $25 per cubic yard or more.

The contractor is responsible for all charges incurred for coring, including traffic control.

B.7.5 Air Content

On each day of production, the air content of the fresh concrete shall be tested as early and as frequently as practicable until the material being produced meets the specifications and the production process is under control. Thereafter, an air content test shall be performed for each compressive strength sublot. A certified PCC Technician I or IA will perform the air content tests on concrete taken from the same concrete sample from which the quality control strength cylinders are produced, unless otherwise required. Air content tests shall be performed in accordance to AASHTO T 152 as modified by the department. The lower and upper control limits for Air Content shall be 4.5% and 7.5%, respectively. The lower warning limit for Air Content shall be 5.0%. There is no upper warning limit.

B.7.5.1 Documentation

Maintain a standardized linear control chart, as described in subsection B.6, in a fixed location on the project site. All tests shall be recorded and become part of the project records. Only test results of samples selected randomly shall be included as part of the four point running average plotted on the control charts. These shall be plotted the same day the tests are conducted.

Document each time an admixture dosage rate is changed, admixture dosage rates, time of day, and air temperature on the combined gradation control chart for material finer than the No. 100 (150 micron) sieve, as described in subsection B.6.

B.7.5.2 Corrective Action

If the result of an individual air content test is between the lower warning limit and lower control limit, double the air content test frequency to two tests per compressive strength sublot. One of these tests shall be performed from the same concrete sample from which the quality control strength cylinders are produced. The second test shall be of a sample randomly selected from the half of the sublot from which the quality control strength cylinders are not produced. With the increase in test frequency, choose both random test locations within a sublot prior to the start of concrete placement for the sublot. Continue this testing frequency until an individual test point is above the lower warning limit and below the upper control limit.

When the four test running average value approaches the warning limit, consider corrective action.

Notify the engineer whenever a four test running average is less than the lower warning limit. When a second consecutive running average value exceeds the warning limit, the contractor and engineer shall discuss a course of corrective action. Perform the corrective action.

If the corrective action improves the property in question such that the new running average, after four additional individual tests, is within the warning limit, the contractor may continue production. If the correction does not improve the property, and the new running average stays in the warning band, repeat the steps outlined in the previous paragraph starting with notifying the engineer. If an individual air content test is outside the control limits, notify the engineer, and perform additional air content tests as often as practicable on subsequent loads of material being delivered to the work site until the air content is inside the control limits. The material shall be considered non-conforming when an individual test result exceeds a control limit. The quantity of non-conforming material shall be that material contained within the load of the first test result exceeding the control limit, continuing to, but not including, the load with the first subsequent test result that is within the control limits. Compensation, rejection or removal/replacement of non-conforming material shall be in accordance to standard spec 106.5.

B.7.6 Concrete Temperature

The concrete temperature shall be measured in accordance to ASTM C 1064, by a certified PCC Technician I or IA, from the same concrete sample from which the quality control strength cylinders are produced. The upper warning limit is 80º F (27º C) and the upper control limit is 90º F (32º C) for concrete temperature. Concrete temperatures shall be recorded on the air content control chart.

B.7.7 Slump

The trial mix design for drilled shaft concrete shall include a Slump Loss Graph, or Slump versus Time after Batching. The Slump Loss Graph of a proposed drilled shaft mix design illustrates the slump reducing slowly and still exceeding a 5-inch slump two hours after batching. Careful attention to concrete mix designs made with retarders must be exercised, and a close monitoring shall be implemented during construction to preclude rapid slump loss, not given enough time for concreting completion before the concrete mix sets.

Adding water to a ready-mix truck is prohibited. In cases in which part of the water of the concrete mix is added at the batch plant and the remaining water is added at the job site, the amount of water to be added at the job site shall be stated on the mix design sheet carried by the ready-mix truck driver. Testing of concrete will then be conducted on the resulting mix, and further water cannot be added at any time to increase the mix slump or to bring the mix to a specific slump. If after all the water permitted in the mix design has been added and the slump is still out of these specifications, the contractor must reject the mix. Repair or replace drilled shafts of questionable concrete design mixes at no additional cost to the department.

Tests for slump shall be made in accordance to AASHTO T 119, by a certified PCC Technician I or IA, at the same frequency and from the same composite sample as the compressive strength cylinders, or as requested by the engineer. Slump shall be measured to the nearest 1/4 inch (5 mm).

	Slump Range in Inches		
	Concrete Placed by Free Falling	Concrete Placed by Tremie	Concrete Placed by Pump
Dry Installation Method			
Permanent Cased Excavations	7 to 9	8 to 9½	7 to 9½
Wet Installation Method			
Uncased Excavations	N/A	8 to 9½	7 to 9½
Temporary Cased Excavations	N/A	8 to 9½	7 to 9½

B.8 Department Testing

B.8.1 General

The department will conduct verification testing to validate the quality of the product and independent assurance testing to evaluate sampling and testing.

Except for strength tests, the department will provide the test results to the contractor within two business days after the department has obtained the sample. The department will provide to the contractor a listing of names and telephone numbers of the personnel responsible for the verification and independent assurance programs.

B.8.2 Acceptance Testing

B.8.2.1 Slurry

B.8.2.1.1 General

Slurry shall be a stable suspension of mineral in potable water or polymer slurry. Maintain a stable suspension at all times. Bentonite slurry shall be mineral slurry of powdered Wyoming or Dakota bentonite, with density, viscosity, and pH as specified in the table below:

Property at 68°F Units	At the Time of Slurry Introduction into the Drilled Shaft	Before Concrete Placement in the Drilled Shaft	Test Method
Density in Fresh Water (lb/ft^3) (a)	64 to 69	64 to 75	Density Balance
Viscosity (seconds per quart)	28 to 45	28 to 45	Marsh Funnel
pH	7 to 11	7 to 11	pH paper or meter
Sand Content (%) (b)	4 maximum	10 maximum	200 Sieve Retain

(a) At time of concreting, sand content shall not exceed 10 percent (by volume) at any point in the drilled shaft excavation; test for sand content as determined by the American Petroleum Institute.

(b) Bentonite slurry shall be disposed of offsite in approved manner as accepted by the WDNR.

The contractor may adjust the range of slurry properties when field trials and field tests show that modifications are necessary to bring the slurry to specifications.

Polymer slurry shall be a suspension of powdered polyacrylamide or vinyl polymer with the following characteristics:

Property at 68°F Units	At the Time of Slurry Introduction into the Drilled Shaft	Before Concrete Placement in the Drilled Shaft	Test Method
Density in Fresh Water (lb/ft^3) (a)	63 or less	63 or less	Density Balance
Viscosity (seconds per quart)	50 minimum	50 minimum	Marsh Funnel
pH	8 to 11	8 to 11	pH paper or meter
Sand Content (%)	2 maximum	10 maximum	200 Sieve Retain

(a) At time of concreting, sand content shall not exceed 10 percent (by volume) at any point in the drilled shaft excavation; test for sand content as determined by the American Petroleum Institute.

Obtain slurry samples from the midpoint and bottom of each drilled shaft prior to the placement of the reinforcing steel. Correct the slurry as necessary to meet the specification requirements.

B.8.2.1.2 Tests
To ensure that the results are within the ranges stated in the table above, perform the following tests on the mineral slurry supplied to the drilled shaft excavation at different depths within the drilled shaft using a slurry sampler.

B8.2.1.2.1 Wisconsin Method of Test for Density of Slurry (Mud Weight)
Density shall be measured at 68°F.

This test is identical to ASTM D 4380 except that the mineral slurry to be tested shall consist of processed attapulgite or bentonite clays, and the temperature of the slurry (using a 0-105°C thermometer) shall be measured and recorded on the drilling Mud Report form.

B.8.2.1.2.2 Wisconsin Method of Test for Viscosity of Slurry
The viscosity shall be measured at 68°F or a constant temperature with the Marsh Cone Method.

B8.2.1.2.2.1 Scope
B8.2.1.2.2.1.1 Viscosity relates to the flow of properties of muds. The study of deformation and flow of matter is rheology.

B8.2.1.2.2.1.2 The instrument used to measure viscosity of drilling fluids on a routine basis is the Marsh Funnel or Marsh Cone.

B8.2.1.2.2.1.3 This test method has been adapted from Section 2 of the American Petroleum Institute (API) Recommended Practice FM8-RP13B-1: Standard Procedure for Field Testing Water-Based Drilling Fluids (FM 8-RP13B-1). Use of a direct-reading viscometer has been eliminated.

B8.2.1.2.2.2 Equipment
B8.2.1.2.2.2.1 Marsh Funnel: A Marsh Funnel is calibrated to out-flow 946 mL (one quart) of fresh water at a temperature of 21 ±3°C (70 ±5°F) in 26 ±0.5 seconds. A graduated cup is used as a receiver.

Specifications	
Funnel Cone Length	305 mm (12.0 in.)
Diameter	152 mm (6.0 in.)
Capacity to bottom of screen	1500 mL
Orifice Length	50.8 mm (2.0 in.)
Inside Diameter	4.7mm (3/16 in.)
Screen	12 mesh

Has 1.6 mm (1/16 in.) openings and is fixed at a level 19.0 mm (3/4 in.)

B.8.2.1.2.3 Wisconsin Method of Test for Sand Content of Slurry
B8.2.1.2.3.1 Scope
B8.2.1.2.3.1.1 Description: The sand content of mud is the volume percent of particles larger than 74 microns. It is measured by a sand-screen set.

B8.2.1.2.3.1.2 This test method has been adapted from Section 5 of the American Petroleum Institute (API) Recommended Practice 13B-1: standard Procedure for Field Testing Water-Based Drilling Fluids (RP13B-1).

B8.2.1.2.3.2 Equipment
B8.2.1.2.3.2.1 200-mesh sieve, 63.5 mm (2.5 in.) in diameter.

B8.2.1.2.3.2.2 Funnel to fit sieve.

B8.2.1.2.3.2.3 Glass measuring tube marked for the volume of mud to be added. The tube is graduated from 0 to 20 percent in order to read directly the percentage of sand.

B8.2.1.2.3.3 Procedure
B8.2.1.2.3.3.1 Fill the glass measuring tube with mud to the "mud" mark. Add water to the next mark. Close the mouth of the tube and shake vigorously.

B8.2.1.2.3.3.2 Pour the mixture onto the clean, wet screen. Discard the liquid passing though the screen. Add more water to the tube, shake, and again pour onto the screen. Repeat until the tube is clean. Wash the sand retained on the screen to free it of any remaining mud.

B8.2.1.2.3.3.3 Put the funnel upside down over the top of the sieve invert. Slowly tip the assembly and insert the tip of the funnel into the mouth of the glass tube. Wash the sand into the tube by playing a fine spray of water through the screen. Allow the sand to settle. From the graduations on the tube, read the volume percent of the sand.

B8.2.1.2.3.3.4 Report the sand content of the mud in volume percent. Report the source of the mud sample, i.e. above shaker, suction pit, etc. Coarse solids other than sand will be retained on the screen (e.g., lost circulation material) and the presence of such solids should be noted.

B.8.2.1.2.4 Wisconsin Method of Test for pH of Slurry
pH shall be measured by the Electric pH meter or pH indicator paper strips.

B8.2.1.2.4.1 Scope
B8.2.1.2.4.1.1 Field measurement of drilling fluid (or filtrate) pH and adjustments to the pH are fundamental to drilling fluid control. Clay interactions, solubility of various components and contaminants, and effectiveness of additives are all dependent on pH, as is the control of acidic and sulfide corrosion processes.

B8.2.1.2.4.1.2 The recommended method for pH measurement of drilling fluid is with a glass electrode pH meter. This method is accurate and gives reliable pH values, being free of interference if a high quality electrode system is used with a properly designed instrument. Rugged pH instruments are available that automatically temperature compensate the slope and are preferred over the manually adjusted instruments.

NOTE: Color matching pH paper and sticks are used for field pH measurements, but are not the methods recommended. These methods are reliable only in very simple water muds. Mud solids, dissolved salts and chemicals, and dark-colored liquids cause serious errors in pH paper values. Readability is normally about 0.5 pH unit.

B8.2.1.2.4.1.3 This test method has been adapted from Section 7 of the American Petroleum Institute (API) Recommended Practice 13B-1: Standard Procedure for Field Testing Water-Based Drilling Fluids (RP 13B-1).

B8.2.1.2.4.2 Equipment

B8.2.1.2.4.2.1 pH meter: millivolt range potentiometer calibrated to show pH units for measuring the potential between a glass-membrane electrode and a standard "reference" electrode. The instrument is (preferred) to be water, shock, and corrosion-resistant and portable. Specifications are:

B8.2.1.2.4.2.1.1 pH range: 0 to 14.
B8.2.1.2.4.2.1.2 Electronics type: solid state (preferred).
B8.2.1.2.4.2.1.3 Power source: batteries (preferred).
B8.2.1.2.4.2.1.4 Operating temperature range: 0-66°C (32-150°F).
B8.2.1.2.4.2.1.5 Readout: digital (preferred).
B8.2.1.2.4.2.1.6 Resolution: 0.1 pH unit.
B8.2.1.2.4.2.1.7 Accuracy: ±0.1 pH unit.
B8.2.1.2.4.2.1.8 Repeatability: 0.1 pH unit.
B8.2.1.2.4.2.1.9 Adjustments.
B8.2.1.2.4.2.1.9.1 "Temperature" compensation of electrode system.
B8.2.1.2.4.2.1.9.2 "Slope" of electrode system (preferred).
B8.2.1.2.4.2.1.9.3 "Calibration" setting of readout. (Instrument with the above internal temperature compensation is preferred.)

B8.2.1.2.4.2.2 Electrode system: A combination system of a glass electrode for sensing H^+ ions and a standard voltage reference electrode, constructed as a single electrode (preferred). Body of this probe should be constructed of durable material. A flat-end probe is preferred for better protection and easier cleaning of the electrode. Waterproof connection to the meter is recommended. Specifications are:

B8.2.1.2.4.2.2.1 Glass pH electrode response range: 0 to 14 pH unit.
B8.2.1.2.4.2.2.2 Electrodes: a glass electrode and a silver/silver chloride electrode in combination, having a ceramic or a plastic single or double junction.
B8.2.1.2.4.2.2.3 Electrolyte in reference electrode: KCl gel.
B8.2.1.2.4.2.2.4 Glass composition: suitable for low sodium ion error.

B8.2.1.2.4.2.2.5 Sodium ion error: at pH = 13 or at 0.1 mole Na^+ ion, an error less than 0.1 pH unit.
B8.2.1.2.4.2.3 Buffer solutions: three solutions to calibrate and set slope of pH meter prior to sample measurement.
B8.2.1.2.4.2.3.1 pH = 4.0: potassium hydrogen phthalate at 0.05 molar in water. Gives 4.01 pH at 24°C (75°F).
B8.2.1.2.4.2.3.2 pH = 7.0: potassium dihydrogen phosphate at 0.02066 molar and disodium hydrogen phosphate at 0.02934 molar in water. Gives 7.00 pH at 24°C (75°F).
B8.2.1.2.4.2.3.3 pH = 10.0: sodium carbonate at 0.025 molar and sodium bicarbonate at 0.025 molar in water. Gives 10.01 pH at 24°C (75°F).

NOTE: Buffers may be obtained from supply houses as pre-made solution, dry-powder packages, or a given formula, but must duplicate National Bureau of Standards primary or secondary buffers. Shelf life of all buffers not to exceed six months before disposal. Date of preparation of buffer should be shown on bottles used in the field. Bottles should be kept tightly stoppered.

B8.2.1.2.4.2.4 Distilled or deionized water: in spray bottle.

B8.2.1.2.4.2.5 Soft tissues: to blot electrodes.

B8.2.1.2.4.2.6 Thermometer: glass, 0-150°C (32-220°F).

B8.2.1.2.4.2.7 Accessory equipment:
B8.2.1.2.4.2.7.1 Soft-bristle test tube brush: to clean electrode.
B8.2.1.2.4.2.7.2 Mild liquid detergent: Ivory, or equivalent.
B8.2.1.2.4.2.7.3 Electrode storage vial: to keep electrode moist.
B8.2.1.2.4.2.7.4 Sodium hydroxide: 0.1 molar (approximately); to recondition electrode.
B8.2.1.2.4.2.7.5 Hydrochloric acid: 0.1 molar (approximately); to recondition electrode.
B8.2.1.2.4.2.7.6 Ammonium bifluoride: 10% solution (approximately); to recondition electrode.
CAUTION: This is a strong and toxic acid.
B8.2.1.2.4.2.7.7 Hydrofluoric acid: ACS reagent grade.
CAUTION: This is a strong acid.

B8.2.1.2.4.3 Procedure – pH Measurement
B8.2.1.2.4.3.1 Obtain sample of fluid to be tested. Allow it to reach 24±3°C (75±5°F).
B8.2.1.2.4.3.2 Allow buffer solution to also reach the same temperature as the fluid to be tested.
NOTE: For accurate pH measurement; the test fluid, buffer solution, and reference electrode must all be at the sample temperature. The pH of the buffer solution indicated on the container label is the correct pH only at 24°C (75°F). If attempting to calibrate at another temperature, the actual pH of the buffer at this temperature must be used. Tables of buffer pH values at various temperatures are available from the suppliers and should be used in the calibration procedure.

B8.2.1.2.4.3.3 Clean electrodes by washing with distilled water and blot dry.
B8.2.1.2.4.3.4 Place probe into pH 7.0 buffer.
B8.2.1.2.4.3.5 Turn on meter; wait 60 seconds for reading to stabilize. (See section B8.2.1.2.4.4.1 if meter reading is not stable).
B8.2.1.2.4.3.6 Measure temperature of pH 7 buffer solution.
B8.2.1.2.4.3.7 Set this temperature on "temperature" knob.
B8.2.1.2.4.3.8 Set meter reading to "7.0" using "calibration" knob.
B8.2.1.2.4.3.9 Rinse probe with distilled water and blot dry.
B8.2.1.2.4.3.10 Repeat operations in Sections 3.6 through 3.9 using either pH 4.0 or pH 10.0 buffer. Use pH 4.0 if "acidic" sample, or pH 10.0 if "alkaline" sample is to be tested. Set meter to number "4.0" or "10.0" respectively, using "slope" adjustment knob. (If no "slope" knob exists, use the "temperature" knob to set "4.0" or "10.0" on meter).
B8.2.1.2.4.3.11 Check the meter with pH 7 buffer again. If it has changed, reset to "7.0" with "calibration" knob. Repeat Sections B8.2.1.2.4.3.6 through B8.2.1.2.4.3.11. If meter does not calibrate properly, recondition or replace electrodes as given in Sections B8.2.1.2.4.4.1 through B8.2.1.2.4.4.6.
NOTE: Discard and do not reuse the sample of buffer solutions used in calibration. Meter should be fully calibrated every day, Sections B8.2.1.2.3.2 through B8.2.1.2.3.11 using two buffers. Check with pH 7 buffer every three hours.
B8.2.1.2.4.3.12 If meter calibrates properly, rinse electrode with distilled water and blot dry. Place electrode in sample to be tested and stir gently. Allow 60 to 90 seconds for reading to stabilize.
B8.2.1.2.4.3.13 Record sample pH to nearest 0.1 pH unit and the temperature of sample tested on Drilling Mud Report form.
B8.2.1.2.4.3.14 Carefully clean the electrode in preparation for next usage. Store in vial of pH 4 buffer. NEVER let the probe tip become dry.
B8.2.1.2.4.3.15 Turn meter off and close cover to protect instrument. Avoid storing instrument at extreme temperatures (below 0°C (32°F) or above 49°C (120°F)).

B8.2.1.2.4.4 Care of Electrode
B8.2.1.2.4.4.1 Cleaning the electrode will be necessary periodically, especially if oil or clay particles coat the face of the glass electrode or the porous frit of the reference electrode. Clean electrode with a soft-bristle brush and a mild detergent.
B8.2.1.2.4.4.2 Reconditioning the electrode may be necessary if plugging becomes sever, as indicated by slow response, drifting of readings, or if "slope" and "calibration" cannot be mutually set.
B8.2.1.2.4.4.3 Recondition by soaking electrode for 10 minutes in 0.l M HCl followed by rinsing in water and soaking for 10 minutes in 0.1 M NaOH and rinsing again.
B8.2.1.2.4.4.4 Check electrode for response by performing calibration Sections B8.2.1.2.4.3.2 through B8.2.1.2.4.3.11.
B8.2.1.2.4.4.5 If electrode continues to perform poorly, soak electrode for two minutes only in 10% $NH_4F \cdot HF$ solution. (CAUTION: This is strong and toxic acid).
B8.2.1.2.4.4.6 Replace electrode system if above steps fail to recondition it.

B.8.3 Verification Testing

B.8.3.1 Concrete

An appropriate Certified Technician will perform verification testing. Certification will be in accordance to the department's Highway Technician Certification Program.

The department will randomly collect samples at locations independent of the contractor's quality control work. In all cases, the verification tests will be conducted in a separate laboratory and with separate equipment from the quality control tests.

Verification Testing will be performed in accordance to the following schedule:

	Testing Frequency Guide*	Sampling Material	Test Method	Alternate Test Methods
Air Content	1 per lot	Plastic Concrete	AASHTO T 152 as Modified	Hardened Air Content Testing **, Following Construction
28-day Strength	1 per lot	Cylinders	AASHTO T 22, T 23 and T 141 as Modified	Random Cores**, Following Construction

* Frequency of sampling and testing may be increased by the engineer at the start up or as necessary to validate the quality of the materials or reduced based on a history of satisfactory contractor or material performance.

** Evaluation of test results should account for systematic differences in testing methods or sampling locations.

The verification test results shall be plotted on the contractor's quality control charts in accordance to subsection B.6. These results will not be included with the four point running average.

When verification test results indicate specification compliance, no further action is required. When test results indicate non-conformance, both the contractor and the engineer shall immediately investigate the discrepancy. The investigation may include additional testing, and/or review and observation of the sampling and testing procedures and equipment of both parties. Both parties shall document all work. All deficiencies shall be resolved. If response is not made by the contractor to the engineer's request to resolve the discrepancy, the engineer may suspend production until action is taken; the conflict shall be handled in accordance to Section B.9.

B.8.4 Independent Assurance Testing

Independent assurance is unbiased testing performed by the department to evaluate the sampling and testing of the quality control or verification technicians including personnel

qualifications, procedures, and equipment. Independent assurance review will be performed in accordance to the department's Independent Assurance Program, which may include:

- Split sample testing;
- Proficiency sample testing;
- Witnessing sampling and testing;
- Test equipment calibration checks;
- Review of the required worksheets and control charts;
- Request the testing personnel to take additional samples and perform the testing.

The independent assurance test results will be plotted on the contractor's quality control charts in accordance to subsection B.6. These results will not be included with the four point running average.

If a deficiency is identified, and after further investigation confirmed, a resolution will be sought. If response is not made by the contractor to cooperate in the resolution of identified deficiencies, the engineer may suspend production until action is taken; the conflict shall be handled in accordance to Section B.9.

B.9 Dispute Resolution

The contractor and the engineer shall make every effort to avoid conflict. If a dispute between some aspect of the contractor's and the engineer's testing program does occur, the project personnel should seek a mutually agreeable solution. This may be accomplished through review of data, data reduction and analysis, an evaluation of sampling and testing procedures, and/or additional testing. If statistically outlying data is suspected, ASTM E 178 may be used to assist in evaluation.

If the project personnel cannot resolve the dispute and the dispute is of sufficient magnitude to affect payment or result in the incorporation of a non-conforming product, then third party testing shall be used to resolve the difference and provide a means to minimize adversarial relationships and claims. The department's Materials Testing Laboratory, or a mutually agreed on independent testing laboratory, will be asked to provide this testing. The engineer and contractor will abide by the results of the third party tests. The party found in error will pay service charges incurred for testing by an independent laboratory. The additional test results may be used to evaluate the quality of questionable materials and determine the appropriate payment in accordance to other provisions of the specification and standard spec 106.5.

B.10 Acceptance

The department's acceptance of concrete masonry will be based on the contractor's quality control tests unless it is shown through the verification, or dispute resolution process that the contractor's test results are in error.

C (Vacant)

D (Vacant)

E Payment

E.1 QMP Drilled Shafts

Costs for all sampling, testing, and documentation required under this special provision and all charges incurred for coring, including traffic control if necessary, are incidental to the work. If the contractor fails to perform the work required under this special provision, the department may reduce the contractor's pay. The department will administer pay reduction under the Non-performance of QMP administrative item.

E.2 Concrete Masonry Strength Pay Adjustment

The department will adjust pay for each lot using percent within limits (PWL) of the 28-day sublot average strengths for that lot. The department will measure percent within limits relative to the 28-day compressive strength lower specification limit of 3500 psi.

If the contractor requests, the department will reevaluate a lot's pay adjustment based on 56-day cylinder tests. Submit the 56-day sublot average strengths for the 3 lowest strength sublots of the lot in question. If all three 56-day sublot average strengths are greater than or equal to the highest f'_c designated within the lot, the department will assess 1/2 the penalty.

E.2.1 Compressive Strength - Standard Lots

The department will compute the pay adjustment using the department's spreadsheet. The spreadsheet performs the computations described in the Procedure Manual for the completion of Attachment 27.

For each standard lot, submit both of the following:

- A copy, on paper, of the data input portion of Attachment 27.
- Strength data in an electronic format, either by e-mail or on disk that can be readily imported into the department's spreadsheet.

The department will determine the pay adjustment for each lot as follows:

PWL	Pay Adjustment for Compressive Strength (English units)
≥80 to <100	No pay adjustment
≥50 to <80	Unit Pay Decrease*=1/3 (2.5 PWL - 200)
<50	Unit Pay Decrease* = 25.00

* Dollars per cubic yard of ready-mixed concrete used.

Note: If the lot PWL is below 80 but all 28-day sublot average strengths in that lot exceed the lower specification limit, the department will not adjust the pay for that lot.

E.2.2 Compressive Strength - Small Lots

For a small lot, as specified in subsection B.7.4.1, the department will calculate the PWL by hand calculation as described in the Procedure Manual. The department will use a sample size of 4. For the standard deviation, the department will use the smallest of the following:

- The lot standard deviation.
- The average of the standard deviations for the other project lots.
- An assumed standard deviation of 500 psi (3.5 MPa).

E.2.3 Disincentive for Compressive Strength

The department will administer disincentives for compressive strength under the Disincentive Strength Concrete Structures administrative item.

39. Maintaining Drainage.

Maintain drainage at and through worksite during construction in accordance to standard spec 107.22, standard spec 204, and standard spec 520.

Use existing storm sewer, culvert pipes or existing drainage channels to maintain existing surface and pipe drainage. Pumps may be required to drain the surface and/or pipe/structure discharges during construction. Costs for furnishing, operating, and maintaining the pumps is considered incidental to storm sewer construction.

Dewatering

If dewatering or pumping is required, treat the water to remove suspended solids before allowing it to enter any waterway or wetland. Filter pumped water through a media such as washed stone or allow settling in a sedimentation basin with sufficient capacity and size to provide an efficient means to filter the water from the dewatering operation before it is discharged back into the waterway or wetland. As part of the Erosion Control Implementation Plan (ECIP) submittal, supply all pertinent information and calculations used to determine the best management practice for dewatering at each location it is required.

Refer to the dewatering guidelines of WisDNR Storm Water Management Technical Standards, Code #1061, “Dewatering”. This document can be found at the WisDNR website: http://dnr.wi.gov/runoff/stormwater/techstds.htm

40. Concrete Masonry Structures.

A Description

A.1 General

Work under this item applies to cast in place concrete for structures. Conform to standard spec 501, 502, 504, 701, 710 and 715 and as modified in this special provision. Apply this special provision to all cast in place concrete placed under the following bid items:

502.0100	Concrete Masonry Bridges
502.0200	Concrete Masonry Bridges HES
502.1100	Concrete Masonry Seal
504.0100	Concrete Masonry Culverts
504.0200	Concrete Masonry Culverts HES
504.0500	Concrete Masonry Retaining Walls
504.0600	Concrete Masonry Retaining Walls HES
504.0900	Concrete Masonry Endwalls

A.2 Concrete Masonry Bridges

Work under the item Concrete Masonry Bridges applies to cast in place concrete for bridge substructures, which includes abutments and piers. Cast in place concrete for bridge superstructures, which includes bridge decks, raised medians, sidewalks, and parapets, is covered under the special provision item HPC Masonry Superstructures.

B (Vacant)

C Construction

Replace standard spec 501.3.8.2 with the following:

The contractor is responsible for the quality of the concrete placed in hot weather. Submit a written temperature control plan at or before the pre-pour meeting. In that plan, outline the actions taken to control concrete temperature if the concrete temperature at the point of placement exceeds 80° F (27° C). Do not place concrete without the engineer's written acceptance of that temperature control plan. Perform the work as outlined in the temperature control plan.

If the concrete temperature at the point of placement exceeds 90° F (32° C), do not place concrete under the following bid items:

Concrete Masonry Bridges
Concrete Masonry Bridges HES
Concrete Masonry Retaining Walls
Concrete Masonry Retaining Walls HES
Concrete Masonry Culverts
Concrete Masonry Culverts HES
Concrete Masonry Endwalls

Notify the engineer whenever conditions exist that might cause the temperature at the point of placement to exceed 80º F (27º C). If project information is not available, obtain information from similar mixes placed for other nearby work.

Any additive or action taken to control the temperature of the Concrete Masonry to within the limits of this special provision, including but not limited to the addition of ice to the concrete mix, is considered incidental to the work and will not be measured or paid for separately.

Add the following standard spec 501.3.11:

501.3.11 Slip Forming
Do not place concrete by the slip-form method for any item covered by this special provision.

D (Vacant)

E (Vacant)

41. Railing Pipe R-40-484.

A Description
This special provision describes furnishing and installing steel pipe handrails in accordance to standard spec 513, as shown in the plans, and as hereinafter provided.

B Materials
B.1 Paint for Railing Pipe
Use one of the qualified paint sources and products given below with tie primer coat specifically intended for painting of galvanized surfaces. An equivalent system may be used with the written approval of the engineer.

Producer	Coat	Products	Dry Film Minimum Thickness (mils)	Minimum Time Between Coats (hours)
Sherwin Williams 1051 Permeter Drive, Suite 710 Schaumburg, IL 60173 (847) 330.1562	Tie	Recoatable Epoxy Primer B67-5 Series/B67V5	2.0 to 4.0	6
	Top	Acrolon 218 HS Polyurethane , B65-650	2.0 to 4.0	NA
Carboline 350 Hanley Industrial St. Louis, MO 63144 (314) 644.1000	Tie	Rustbond Penetrating Sealer FC	1	36
	Top	Carboline 133 LH	4	NA
Wasser Corporation 4118 B Place NW Suite B Aubum, WA 98001	Tie	MC-Ferrox B 100	3.0 to 5.0	8
	Top	MC-Luster 100	2.0 to 4.0	NA

B.2 Color
The finished color for coating system for railing pipe shall match Federal Color 37038 – Black

C Construction
Delete standard spec 513.3.1(6) and replace with the following:

After fabrication, blast clean railing pipe assemblies per SSPC-SP 6 and galvanize according to ASTM A 123. Steel preparation includes the chamfering of sharp edges. All sharp edges shall be flattened by a single pass of a grinder or suitable device along the sharp edge. Condition any thermal cut edges before blast cleaning by shallow grinding or other cleaning to remove any hardened surface layer. Remove all evident steel defects exposed in accordance to AASHTO M 160 prior to blast cleaning.

After galvanizing, paint all exterior surface of railing pipe as hereinafter provided. All exterior galvanizing surfaces shall be cleaned per SSPC-SP1 to remove, chlorides, sulfates zinc salts, oil, dirt, organic matter and other contaminants. The cleaned surface should then be Brush Blast Cleaned per SSPC-SP7 to create a slight angular surface profile (1.0 – 1.5 mils) for adhesion. Blasting should not fracture the galvanized finish or remove any dry film thickness.

After cleaning provide a tie primer coat from an approved coating system that is specifically intended to be used on a galvanized surface. The tie coat shall etch the galvanized rail and prepare the surface for the top coat. Apply a top coat matching the specified color. The tie and top coats should be of contrasting colors. Use a pre-approved top coat that is resistant to the effects of the sun, and is suitable for use in a marine environment. Exercise care so as not to damage the painted surface during railing installation.

D (Vacant)

E Payment
Delete standard spec 513.5(2) and replace with the following:

Payment for Railing Pipe is full compensation for providing, fabricating transporting, and erecting the rail; for preparation, galvanizing, cleaning and painting; for providing and placing metal shims under the bases if required; for providing and placing the anchor bolts; and furnishing all labor, tools, equipment and incidentals necessary to complete the contract work.

42. Driven Piles Using Pile Dynamic Analyzer.

Where indicated in the structure plans, replace standard spec. 550.3.6 with the following:

550.3.6 Driving Resistance

(1) Drive piles to the depths necessary to obtain the required driving resistance per the driving resistance determination method called for in the plans.

(2) Driving resistance will be developed by the engineer from Pile Dynamic Analyzer (PDA) testing performed on the designated piles at each substructure unit as shown on the plans. The driving criteria will be given as blows per foot with hammer stroke and minimum penetration of the pile or as directed by the engineer.

The PDA test piles at each substructure unit are designated on the plans and will be monitored using a PDA. Pile installation for these test piles will be controlled by the PDA testing and the engineer per the Pile Dynamic Analyzer (PDA) Testing and Restrike Special Provision within this contract.

For the PDA driving resistance determination method, pile restrikes will be required per the PDA Testing and Restrike Special Provision, or as directed by the engineer. Accommodate a time delay in the pile driving sequence as defined in the PDA Testing Special Provision to allow the engineer time to develop the production pile driving criteria.

(3) If the required driving resistance is not met at the minimum tip elevation, driving shall continue until it is achieved. If the required driving resistance is achieved above the minimum tip elevation, driving shall continue until both the minimum tip elevation and required driving resistance criteria are met. If practical pile refusal is encountered prior to the minimum tip elevation, the engineer will determine if driving can be halted.

Where indicated in the structure plans, delete standard spec. 550.3.7.

43. Storm Sewer Backfill.

Backfill all trenches and excavations of all new storm sewer and storm sewer structures and locations where existing storm sewers and or existing storm sewer structures have been called for removal, not occupied by the new roadway structure, immediately after completing the sewer work with Backfill Granular conforming to standard spec 204, standard spec 209, standard spec 607 and standard spec 611. No separate payment will be made for backfill granular and is considered incidental to the respective pipe or storm sewer structure item.

Replace standard spec 607.5.1(1) with the following:

(1) Payment for the Storm Sewer Pipe bid items is full compensation for providing all materials, including all special Y's, mitered sections, elbows and connections required; for excavating and wasting excess material, except rock excavation; for providing and removing sheeting and shoring; for forming foundation; for laying pipe; for sealing joints and making connections to new or existing features; for providing granular backfill material, including bedding material; for backfilling; for cleaning out; and absent the pertinent contract bid items, for restoring the work site.

44. Manhole and Inlet, and Catch Basin Adjusting Rings.

Complete adjustment of manhole, catch basin, and inlet structures in accordance to standard spec 611 and herein provided:

Adjustments of 4-inches or more in height shall be constructed using concrete grade rings. Grade rings less than 2-inches in thickness are not allowed.

45. Storm Sewer.

General
Contractor is responsible to review the plans, specifications, and existing site conditions prior to bidding to ascertain the extent of the work requiring ground support systems.

Contractor is to ensure the awareness of the risk involved in constructing sewers in close proximity to existing utilities, structures, and live traffic lanes.

Contractor is responsible for the design, furnishing of materials, installation, monitoring and removal of ground support systems.

Storm Sewer Pipe
The costs for bedding material are included in the contract unit price for each sewer size and no further payment will be made.

Provide rubber gasket joints for all storm sewer pipes.

Rubber Gasket Joint
Place rubber gasket over the spigot end or tongue of the entering pipe. Clean the gasket and the ends of the pipe from sand and gravel. Immediately before making the joint, lubricate the outside of the gasket and the inside of the bell or groove of the last pipe with an approved vegetable lubricant. Place the spigot or tongue of the pipe being laid with the gasket in place into the bell or groove end of the previously laid pipe. Set pipe carefully to line and grade, and push or jack home. The engineer can order the use of a jack or “come-along” if deemed necessary to ensure that the joints are completely tight.

The costs for rubber gasket joints are included in the contract unit price for each sewer size and no further payment will be made.

Storm Sewer Structures
Use a Grade "A" concrete collar for final adjustment of manhole cover.

Use construction methods that conform to the requirements set forth in standard spec611.3.3.

The costs for Grade “A” concrete adjustments is included in the contract unit price for each drainage structure and no further payment will be made.

Conform to storm sewer concrete collar detail for all storm sewer pipes to structure connections.

Provide a butyl rubber gasket or butyl rubber rope for joints of precast reinforced concrete manhole sections. Butyl Rubber gasket joint used for manholes conforms to 8.41.6 of the Standard Specification for Sewer and Water Construction in Wisconsin, 6th Edition. The costs for butyl rubber joint are included in the contract unit price for each manhole and no further payment will be made.

Utilities
Supporting utilities in storm sewer trench is considered incidental to storm sewer pipe.

46. Sodding.

Amend standard spec 631.2.1(4) to include the following:

If temperatures are below 32 F, protect sod from freezing.

Amend standard spec 631.3.2(1) to include the following:

Upon engineer's approval, sod may be placed on frozen ground if frost has not penetrated more than 1 inch. Temperature must be above 32F when installing sod. Sod shall not be frozen.

Amend standard spec 631.3.5 to include the following:

If sod is installed over frozen ground, sod must be watered within one hour of installation and temperature shall be above 32F. Roll sod after initial watering to achieve good root contact with the prepared earth bed. A second watering shall be applied 1 day after installation with temperature above 32F at time of watering, or as directed by the engineer.

47. Furnishing and Planting Plant Materials.

Amend standard spec 632.2.2.1 to include the following:

All plants shall be grown within the states of Wisconsin, Minnesota, Michigan, or parts of northern Illinois located within Zones 5a or 5b as defined by the 2012 version of the "Plant Hardiness Zone Map" published by the United States Department of Agriculture, unless otherwise approved by the engineer.

Amend standard spec 632.3.3 to include the following:

Mark all planting locations and notify the engineer. The department's engineer or landscape architect will visit the site within 3 days of notification and inspect marked planting locations. The engineer or landscape architect may modify marked plant locations if they deem it in the best interest for the plants long term survival.

48. Digging, Handling, and Packing of Plant Stock.

Amend standard spec 632.2.2.9.1 to include the following:

Plant materials specified for fall planting, that require spring digging, shall be reserved by the contractor in advance of the project to allow plant installation in conformance with the project schedule.

Spring dug plants shall be placed in a holding area where the root ball shall be covered to the existing soil line with hardwood bark mulch or a material approved by the landscape architect. Holding area shall allow for watering and protection from wind and full sun (40%-50% sun recommended). All plants in leaf shall be sprayed with an anti-descant in conformance with standard spec 632.2.11. Plants may be held by either the contractor or supplier.

49. Landscape Planting Surveillance and Care Cycles.

If the care specialist fails to perform any of the required care cycles as specified in standard spec 632.3.19.1, the department will assess daily damages in the amount of $225.00 to cover the cost of performing the work with other forces. The department will assess these damages for each day the requirements of the care cycle remain incomplete, except when the engineer extends the required time period.
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50. Signs Type I and II.

Furnish and install mounting brackets per approved product list for type II signs on overhead sign supports incidental to sign. For type II signs on sign bridges use aluminum vertical support beams noted above incidental to sign.

Modify standard spec 637.2.4 with the following:

Use stainless steel bolts, washers and nuts for type I and type II signs mounted on sign bridges or type I signs mounted on overhead sign supports. Use clips on every joint for Sign Plate A 4-6 when mounted on a sign bridge or overhead sign support. Inspect installation of clips and assure bolts and nuts are tightened to manufacturers recommended torque values.

Use aluminum vertical sign support beams that have a 5-inch wide flange and weigh 3.7 pounds per foot, if the L-brackets are 4 inches wide then use 4 inch wide flange beams weighing 3.06 pounds per foot. Contractor shall measure the width of the L-brackets on existing structures of determine the width needed for sign support beams

Use beams a minimum of six feet in length or equal to the height of the sign to be supported, whichever is greater. Use U-bolts that are made of stainless steel, one-half inch diameter and of the proper size to fit the truss cords of each sign bridge. Install

vertical sign support beams on each sign and use new U-bolts to attach each beam to the top and bottom cord of the sign bridge truss.

For type II signs on overhead sign supports follow the approved product list for mounting brackets.

Replace standard spec 637.2.4.1(2)2 with the following:

Clips may be either stainless steel or ASTM B 108, aluminum alloy, 356.0-T6.

Append standard spec 637.3.2.1(3) with the following:

Provide the engineer with 3 copies of drawings of the signs proposed to be furnished under this contract for approval.

Append standard spec 637.3.3.2(2) with the following:

Install Type I Signs at the offset stated in the plan, which shall be the clear distance between the edge of mainline pavement right edgeline and the near edge of the sign.

Append standard spec 637.3.3.3(3) with the following:

Furnish and install new aluminum vertical sign support beams on each sign and new U-bolts to attach each beam to the top and bottom cord of the sign bridge truss for Type I or Type II Signs and Type I signs on overhead sign supports incidental to sign.

51. Field Facilities.

Replace standard spec 642 with the following:

The department has procured its own field facilities located at 2424 S. 102nd Street; West Allis, WI 53227.

52. Lighting Systems, General.

A General
Append standard spec 651, 652, 653, 654, 655, 657 and 659 as follows:

B City of Wauwatosa
Lighting units:
Splices shall accept (4) #14-#2 conductors, be underground/overhead rated and include gel filled hinged splice closure. Utilize NSI Easy-Splice Gel Tap Splice Kit series connectors (ESGTS-2), or equal by Burndy or Thomas & Betts. Provide two wraps of electrical tape around closure. Split bolts are not allowed.

Pull boxes:
Splices shall accept quantity and size of conductors required at individual pull boxes (which may be of differing configurations), be direct burial and UL50 submersible rated. Utilize NSI Polaris Blue series multi-cable connectors, or equal by Burndy or Thomas & Betts. Split bolts are not allowed. No splices are allowed in pull boxes, unless indicated on the plans.

Conductor Identification:
Color coding shall be accomplished by use of cable jackets' of the proper color. All tails of all splices shall be coded. Secondary distribution circuits shall be color-coded as shown on the plans; the ground conductor shall be green.

Each and every accessible location of underground cable in control cabinet, pull boxes and pole bases (handholes) shall have a permanent weatherproof white nylon tag with TYPED ¼" black lettering identifying the cabinet, conductor circuit number (i.e. "91-1").

C Standard Specifications

C.1 General

Shop Locations
Materials indicated to be returned to the department shall be hauled to one of the following two locations:

- State Electrical Shop at 935 South 60th street, West Allis, as directed by Mr. Mike Prebish, (414) 266-1170.
- Milwaukee County Grounds, 10191 West Watertown Plank Road, Wauwatosa, as directed by Mr. Pat Stoetzel, (414) 750-5306.

Arrange pickups and deliveries 3 days in advance and during regular business hours (Monday – Thursday 7:00 AM to 3:45 PM).

C.2 Specification Modifications

The following modifications are made to standard specifications and standard detail drawings:

Append standard spec651.3.1 with the following:

Each electrical worker is responsible for his own protection from automatic switching and from switching by others. Conform to lock-out and tag-out rules that apply in the industry. Sign and date the tags and include the name of the contractor. If possible, clear lock-outs and tag-outs by the end of the work day. If not possible, notify the engineer.

The plans show required disconnections of existing lighting circuits, most in the form of abandoning existing underground conductors in place. The contractor may need to mobilize several times per each existing lighting distribution center. The contractor is expected to build these costs into the various paid items for removals and installations.

Append standard spec 651.5 with the following:

Work to disconnect and connect conductors will be incidental to the paid measurement of footage.

There will be no measurement for payment for abandoning conductors or removing conductors for scrap.

Work to disconnect and connect electrical system, splice through, or to connect conductors are incidental to the installation or removal of the lighting pay items included in this contract. The department will not measure conductors or conduits that have been abandoned in place or removing them for scrap. The department will allow, at the contractor's discretion, for the salvaging of conductors to be abandoned, if possible.

Append standard spec 652.3.1 with the following:

Install minimum 3-inch diameter PVC conduit elbows in a ground mounted concrete bases to accommodate Cable in Duct (CID) type cable.

Append standard spec 652.3.1.2 with the following:

Furnish and install an UL-listed liquidtight flexible metallic conduit transition wherever a conduit exits from below grade.

Furnish a UL-listed fitting appropriate for the purpose at each transition from one type of conduit to another type. Couplings will not be individually measured for payment.

Append standard spec 652.3.1.4 with the following:

Support conductors at the top of the vertical raceway or as close as practical if the vertical rise exceeds 50-feet. Provide additional supports as shown; in no case shall the distance between supports exceed that shown in Table 300.19(A) of the National Electrical Code.

Append standard spec 653.2.1(1) with the following:

Lighting pull boxes shall read "LIGHTING".

Append standard spec 655.3.1(1) and standard spec 655.3.7(3) with the following:

Wet location splices shall only be allowed where connecting existing conductors to new conductors where indicated on the plans and shall be made with an approved waterproof epoxy kit. No splices are allowed in pull boxes, unless indicated on the plans.

Append standard spec 655.3.7(4) with the following:

Provide an approved secondary in line 600-volt AC fuse assembly with a FNQ 5 ampere fuses in the pole handhole. Provide No. 12 AWG, XLP wire in the pole shaft from the luminaire down to the underground feeder via the fuse(s) with splice at pole base. No. 12 AWG, XLP wire will be paid separately. Fuses are included in electrical wire bid items.

Where two or more cable networks occupy the same pull box, manhole, etc., bundle and tag each circuit network (i.e. A/B/N and C/D/N) with approved all-weather tags.

At each pull point or access point, indicate the line side bundle with a lap of blue tape. *Exception:* Where the direction the bundle comes from is obvious, the lap of blue tape is not required. *Example of exception:* a bridge parapet junction box.

Append standard spec 657.2.2.1.1 with the following:

For non-breakaway poles (mounted on structure, concrete base or behind noise wall barriers without transformer base), as well as at stems of sign bridges containing electrical wires, to be double nutted and contractor to install galvanized rat screen enclosing the bottom of pole area, extra nuts and screen incidental.

Modify standard spec 657.3.1(3) with the following:

Use corrosion protection measures for breakaway transformer bases and aluminum light poles for installation on lighting systems.

53. General Requirements for Electrical Work.

Append standard spec 651.3.3 (3) with the following:

Notify the City of Wauwatosa Public Works Department at (414) 471-8422 to coordinate the inspection. The City of Wauwatosa will perform the inspection for the municipal owned traffic signal.

54. Traffic Signals, General.

All work shall be in accordance to the plans, the standard specifications, and these special provisions.

City of Wauwatosa Owned Traffic Signals
Work under this item shall consist of furnishing and installing all materials included in the plans for the City of Wauwatosa owned traffic signal at the intersection of Watertown Plank Road and Innovation Drive in the City of Wauwatosa, WI. The installation includes the construction of underground and limited above ground equipment for the north leg of the intersection. All other work associated with this traffic signal was and/or will be constructed under previous or future construction projects. Obtain the necessary electrical permits from the City of Wauwatosa Building Department prior to beginning the work. Pay

for any fines, penalties, damage done to property, etc. billed by the City of Wauwatosa. Stake the proposed locations of traffic signal items and notify the City of Wauwatosa Public Works Department at (414) 471-8422 at least ten days prior to starting work so that the locations of the proposed facilities can be approved by the City of Wauwatosa. Any field changes regarding the location of the signal poles, pull boxes, etc. shall be approved by the City of Wauwatosa.

The temporary traffic signal at the intersection of Watertown Plank Road and Innovation Drive is constructed, operated, and maintained by the contractor for project 1060-33-70. Coordinate any temporary traffic signal needs with this contractor.

55. Temporary Traffic Signals for Intersections.

Append standard spec 661.2.1 with the following:

(1) Furnish all temporary traffic signal equipment as shown on the plan. The signal controller shall be capable of operating with the video camera detection system and Emergency Vehicle Preemption (EVP) system. All wood poles shall be plumb and level. Provide primary and secondary temporary traffic signal contact names and phone numbers who will be responsible for implementing temporary traffic signal timing changes. The department may request traffic signal timing changes to an approved incident timing plan during the project. Implement any approved incident timing plan immediately upon notification of the change and immediately upon notification of switching the timing plan back to normal operation. Record the times of operation of the incident timing and subsequent return to normal operation and provide this information to the department.

(3) Furnish and install the temporary electrical service for temporary traffic signals at the intersection of W. Watertown Plank Road and Discovery Parkway according to the requirements of the applicable electrical utility. Provide an affidavit to the electrical utility in a timely manner so the electrical utility can schedule service turn on. If the control cabinet is not mounted on the electrical service pole, add a second electrical service disconnect to the outside of the control cabinet for the convenience of emergency personnel. If required, install the electrical service.

(5) Furnish a video image detector system consisting of video image detector cameras, mounting brackets and hardware, power cable, video image processor card, and auxiliary equipment to make the video detector system fully operational.

Append standard spec 661.3.1 with the following:

(4) Install temporary video detection cameras at the locations shown on the plans and according to the manufacturer's recommendations at a minimum 30-foot mounting height. Install power cable and signal cabinet equipment. Aim the video cameras to provide detection at the location shown on the plans and make the video detector system fully operational.

(5) In the event, at installation or turn on date, a noticeable obstruction is present in line with the video detection zone(s), advise the engineer before setting the zone.

(6) The video camera shall be mounted on a wooden pole. Relocate the video camera to a suitable location if there is impedance on the sensor operation, construction related or otherwise.

(7) The video detection system, as shown in the traffic signal construction plans, shall be complete, in place, tested, and in full operation during each stage and sub-stage of construction.

Append standard spec 661.3.1.1 with the following:

(2) Place the pole in the ground to no less than 1/5 of the pole's length as the plans show. Sawcut existing pavement and concrete curb and gutter as needed to install the wood poles and guy wire anchors. Sawcut existing pavement in accordance to the pertinent provisions in standard spec 690.3, Construction. Remove pavement and concrete curb and gutter as shown on the plans and if needed to install the wood poles and guy wire anchors. Remove only as much pavement as needed to install the wood poles. Remove pavement and curb and gutter in accordance to the pertinent provisions in standard spec 204.3, Construction. Hold any wood poles in place and/or move wood poles during construction due to conflicts with proposed work.

Append standard spec 661.3.1.4 with the following:

(1) Arrange for weekly inspections with the engineer to check the height of the span wire above the roadways to ensure that the bottom of the traffic signal heads remain within the minimum and maximum heights allowed above the roadway. Make all height adjustments within 1-hour of an inspection indicating that adjustments are required. Notify the engineer in writing upon completion of all necessary adjustments. Maintain a written log to properly document the date of each monthly inspection, the heights above the roadway, the roadway clearance after adjustments have been made and acceptance by the engineer. Provide all documentation related to the weekly span wire height checks as well as all records related to maintenance performed on the temporary traffic signal installations to the engineer prior to surrendering the temporary traffic signals.

(4) Maintain all temporary vehicle detection zones as the plans show or as the engineer directs. The temporary vehicle detection zones shall be set near the vicinity and within the approximate distance from the stop bar as shown on the plans. Check temporary vehicle detection zones every other week and at the opening of each stage of temporary traffic signal operation to ensure that they are working and are aimed properly. Periodic adjustment of the detection zones and/or moving of the temporary vehicle detection sensors may be required due to changes in traffic control, staging, or other construction operations.

Ensure that the temporary vehicular detection system stays in clean working order. Periodic cleaning of the equipment may be required due to dirt and dust build-up.

Append standard spec 661.3.2.6 with the following:

(6) Remove the video detection system from the temporary traffic signal poles and cabinet.

Append standard spec 661.5 with the following:

(2) Payment for the Temporary Traffic Signals for Intersections bid item is full compensation for providing, operating, maintaining, and repairing the complete temporary installation; and for removal. Payment also includes the following:

1. Furnishing and installing the replacement equipment.
2. The cost of delivery and pick-up of the cabinet assemblies.
3. Removal of service and site restoration.

Payment is full compensation for drilling holes; furnishing and installing all materials, including bricks, and coarse aggregate; for excavation, bedding, and backfilling, including any sand or other required materials; furnishing and placing topsoil, fertilizer, seed, and mulch in disturbed areas; for properly disposing of surplus materials; for making inspections; for checking and/or adjusting the temporary detection zones every other week; for maintaining and changing the temporary detection zones to match the plans, traffic control, and construction staging; for relocating the temporary detection sensors due to construction activities, if required; for periodically cleaning all temporary vehicle detector equipment; for removing the temporary vehicle detector system; for cleaning up and properly disposing of waste; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

56. Intelligent Transportation Systems (ITS) – Control of Materials.

Standard spec 106.2 – Supply Source and Quality
Supplement standard spec 106.2 with the following:

The department will furnish a portion of equipment to be installed by the contractor. This department-furnished equipment includes the following:

Department-furnished Items
Dome Camera
50-Foot Camera Pole
Pole Mounted Camera
12-Count Fiber Optic Termination Panel
Ethernet Video Encoder
Ethernet Switch
ITS Field Cabinet

Pick-up small department-furnished equipment, such as communications devices, cameras, and controllers, from the department's Statewide Traffic Operations Center (STOC), 433 W. St. Paul Ave., Milwaukee, WI 53203 at a mutually agreed upon time during normal state office hours. Contact the department's STOC at (414) 227-2166 to coordinate pick-up of equipment.

Large department-furnished equipment, such as camera poles will be delivered by the supplier to a contractor-controlled site within Milwaukee County. Delivery will not necessarily be in a "just in time" manner. Store the equipment until field installation. Provide location details and a contact for delivery coordination upon receiving the contract's Notice to Proceed.

Transportation of the equipment between the electric shop and the field or interim location(s) shall be the responsibility of the contractor.

Standard spec 106.3 – Approval of Materials
Supplement standard spec 106.3 with the following:

Design/Shop Drawings
Prior to the purchase and/or fabrication of any of the components listed herein, and for any non-catalog item shown on the Material and Equipment List specified above, and no more than 30 days after notice to proceed, submit five copies of design drawings and shop drawings, as required, to the department for review. The items and the drawings that represent them shall meet the requirements of the standard specifications.

Design drawing submissions shall consist of signed and certified designs, design drawings, calculations, and material specifications for required items.

Shop drawings will be required for, but not limited to the following:

1. Mounting assemblies for the vehicle speed and classification sensors, including their attachment to the structure.
2. Mounting LED warning signs to the sign structure.
3. Mounting detail for dynamic message signs.
4. Any contractor-designed structure or foundation.

The department will complete its review of the material within 30 days from the date of receipt of the submission, unless otherwise specified. The department will advise the contractor, in writing, as to the acceptability of the material submitted. The department may determine that if no exceptions were taken for the item, it is approved, and no further action is required by the contractor; or the item may be partially or totally rejected, in which case modify and/or amend the submittal as required by the department and resubmit the item within 14 days. At this time, the review and approval cycle described above will begin again.
670-005 (20100709)

57. Intelligent Transportation Systems – General Requirements.

A Description

A.1 General

This contract includes furnishing and installing elements for an Intelligent Transportation System (ITS) in or along the existing roadway as shown on the plans.

Unusual aspects of this project include:

- The project includes working on cables and equipment that are carrying data between roadside equipment and the department's Statewide Traffic Operations Center (STOC). Interruption of this service is not expected to perform this work. If an interruption is determined necessary, it must be done on a weekend, and must be done in a way that minimizes communication outages for the existing equipment. Notify the department's STOC at least 48 hours in advance of the planned interruption.
- The department will furnish some of the equipment to be installed. Make a reasonable effort to discover defects in that equipment prior to installing it.

A.2 Surge Protection

Equip every ungrounded conductor wire entering or leaving any equipment cabinet with a surge protector. For purposes of this section, multiple cabinets on a single pole or foundation are considered a single cabinet.

B Materials

B.1 General

Only furnish equipment and component parts for this work that are new and have high quality workmanship. All controls, indicators, and connectors shall be clearly and permanently labeled in a manner approved by the engineer. All equipment of each type shall be identical.

All electrical equipment shall conform to the standards and requirements of the Wisconsin Electrical Code, the National Electrical Manufacturers Association (NEMA), National Electric Safety Council (NESC), Underwriter's Laboratory Inc. (UL) or the Electronic Industries Association (EIA), when applicable. All materials and workmanship shall conform to the requirements of the National Electrical Code (NEC), Rural Electrification Administration (REA), Standards of the American Society for Testing and Materials (ASTM), American Association of State Highway and Transportation Officials (AASHTO), requirements of the plans these special provisions, the standard specifications, and to any other codes, standards, or ordinances that may apply. All system wiring, conduit, grounding hardware and circuit breakers shall be in conformance with the National Electrical Code. Whenever reference is made to any of the standards mentioned, the reference shall be considered to mean the code, ordinance, or standard that is in effect at the time of the bid advertisement.

B.2 Outdoor Equipment

All conductive connectors, pins (except pins connected by soldering), and socket contacts shall be gold plated. Acrylic conformal coating shall protect each circuit board side that has conductive traces. Except for integrated circuits containing custom firmware, all components shall be soldered to the printed circuit board.

To prevent galvanic corrosion, all connections between dissimilar metals shall incorporate a means of keeping moisture out of the connection. Where the connection need not conduct electricity, interpose a non-absorbing, inert material or washer between the dissimilar metals. Use nonconductive liners and washers to insulate fasteners from dissimilar metals. Where the connection must conduct electricity, use a conductive sealant between the dissimilar metals. Alternatively, use an insulating gasket and a bond wire connecting the two metal parts.

B.3 Custom Equipment

Equipment that is not part of the manufacturer's standard product line, or that is made or modified specifically for this project, shall conform to the following requirements:

Where practical, electronics shall be modular plug-in assemblies to facilitate maintenance. Such assemblies shall be keyed to prevent incorrect insertion of modules into sockets.

All components shall be available from multiple manufacturers as part of the manufacturers' standard product lines. All must be clearly labeled with the value, part number, tolerance, or other information sufficient to enable a technician to order an exact replacement part.

Lamps used for indicator purposes shall be light-emitting diodes.

The printed circuit boards shall be composed of "two-ounce" copper on 1/16-inch thick fiberglass epoxy or equivalent type construction. Holes that carry electrical connections from one side of the boards to the other shall be completely plated through. Multilayer printed circuit boards shall not be used. The name or reference number used for the board in the drawings and maintenance manuals supplied to the department shall be permanently affixed to each board.

All components shall be mounted so that the identifying markings are visible without moving or removing any part, if practical.

B.4 Environmental Conditions

Equipment shall continue to operate as specified under the following ranges of environmental conditions, except as noted in the specifications for individual pieces of equipment.

- **Vibration and Shock:** Vehicle speed and classification sensors and any other equipment mounted atop poles or on structures shall not be impaired by the continuous vibration caused by winds (up to 90 mph with a 30 percent gust factor) and traffic.
- **Duty Cycle:** Continuous
- **Electromagnetic Radiation:** The equipment shall not be impaired by ambient electrical or magnetic fields, such as those caused by power lines, transformers, and motors. The equipment shall not radiate signals that adversely affect other equipment.
- **Electrical Power:**
    - **Operating power:** The equipment shall operate on 120-volts, 60-Hz, single-phase unless otherwise specified. It shall conform to its specified performance requirements when the input voltage varies from 89 to 135 volts and the frequency varies +3 Hz.
    - **High frequency interference:** The equipment operation shall be unaffected by power supply voltage spikes of up to 150 volts in amplitude and 10 microseconds duration.
    - **Line voltage transients:** The equipment operation shall be unaffected by voltage transients of plus or minus 20 percent of nominal line voltage for a maximum duration of 50 milliseconds. Equipment in the field shall meet the power service transient requirements of NEMA Standard TS-2 when connected to the surge protectors in the cabinets.
- **Temperature and Humidity:**
    - **Field equipment:** Equipment in the field shall meet the temperature and humidity requirements of NEMA Standard TS-2. Liquid crystal displays shall be undamaged by temperatures as high as 165 degrees F, and shall produce a usable display at temperatures up to 120 degrees F.
    - **Equipment in Controlled Environments** shall operate normally at any combination of temperatures between 50 degrees F and 100 degrees F, and humidity's between 5 percent and 90 percent, non-condensing, and with a temperature gradient of 9 degrees F per hour.

B.5 Patch Cables and Wiring

All cables and wiring between devices installed in a single cabinet, or in separate cabinets sharing a single concrete base, will be considered incidental to the installation of the devices and no separate payment will be made for them. It is anticipated that this will include fiber optic patch cables between termination panels and Ethernet switches, 10 / 100 MBPS Ethernet cables, RS-232 cables between individual devices and terminal servers, and power cables between individual devices and power sources within the cabinets.

B.6 Surge Protection

Low-voltage signal pairs, including twisted pair communication cable(s) entering each cabinet shall be protected by two-stage, plug-in surge protectors and shall be installed on both ends of camera control cables. The protectors shall meet or exceed the following minimum requirements:

- The protectors shall suppress a peak surge current of up to 10k amps.
- The protectors shall have a response time less than one nanosecond.
- The protector shall clamp the voltage between the two wires at a voltage that is no more than twice the peak signal voltage, and clamp the voltage between each wire and ground at 50 volts.
- The first stage of protection shall be a three-element gas discharge tube, and the second stage shall consist of silicon clamping devices.
- The protector shall also contain a resettable fuse (PTC) to protect against excessive current.
- There shall be no more than two pairs per protector.
- It shall be possible to replace the protector without using tools.

Cables carrying power to curve signs shall be protected at the cabinet by grounded metal oxide varistors of appropriate voltages. The varistors must be at least 0.8 inch in diameter.

C Construction

C.1 Thread Protection

Provide rust, corrosion, and anti-seize protection at all thread assemblies of metallic parts by coating (non-spray) the mating surfaces with an approved compound. Failure to use an approved compound will result in no payment for the items to which coating was to have been applied.

C.2 Cable Installation

When installing new cables into conduits containing existing cables, remove the existing cables and reinstall the existing cables simultaneously with the new cables. Take every precaution necessary to protect the existing cables. In the event of avoidable damage to the existing cables, replace all damaged cables, in-kind, at no additional expense to the department. When cables are pulled into conduit, use a cable pulling lubricant approved by the cable manufacturer. Submit documentation supporting manufacturer approval of the lubricant to the engineer.

C.3 Wiring

Every conductor, except a conductor contained entirely within a single piece of equipment, must terminate either in a connector or on a terminal block. Provide and install the connectors and terminal blocks where needed, without separate payment. Use approved splice kits instead of connectors and terminal blocks for underground power cable splices.

Permanently label and key connectors to preclude improper connection. Obtain prior engineer approval for the labeling method(s) prior to use.

Terminal blocks must be affixed to panels that permanently identify the block and what wire connects to each terminal. This may be accomplished by silk screening or by installing a laminated printed card under the terminal block, with the labels on portions of

the card that extend beyond the block. Installation of terminal blocks by drilling holes in the exterior wall of the cabinet is not acceptable.

Use barriers to protect personnel from accidental contact with all dangerous voltages.

Do not install conductors carrying AC power in the same wiring harness as conductors carrying control or communication signals.

Arrange wiring, including fiber optic pigtails, so that any removable assembly can be removed without disturbing wiring that is not associated with the assembly being removed.

Communication and control cables may not be spliced underground, except where indicated on the plans.

Cables in the Statewide Traffic Operations Center or in communication hubs, which are not contained within a single cabinet, shall have at least 10 feet of slack.

C.4 System Operations
If the contractor's operations unexpectedly interrupt Intelligent Transportation Systems (ITS) service, notify the engineer immediately and restore service within 24 hours. Repair all damaged facilities to the condition existing before the interruption. If service is not restored within 24 hours, the department may restore service to any operating device and deduct restoration costs from payments due the contractor.

C.5 Surge Protection
Arrange the equipment and cabinet wiring to minimize the distance between each conductor's point of entry and its protector. Locate the protector as far as possible from electronic equipment. Ensure that all wiring between the surge protectors and the point of entry is free from sharp bends.

D Measurement
No separate measurement will be made for the work described in this article.

E Payment
No separate payment will be made for the work described in this article. All work described in this article shall be included under the ITS items in the contract.
670-010 (20100709)

58. Intelligent Transportation Systems – Signal Assemblies.

Modify standard spec 676 with the following:

676.2.4 Signal Heads

(1) Furnish the housing, visor, lenses, LED modules, and other components consisting of an LED signal head assembly from the statewide approved electrical materials list.

59. Intelligent Transportation System – Communication Vault.

Modify standard spec 673 with the following:

673.2 Materials

(3) Furnish a vault lid with a minimum design load of 15,000 pounds and that has permanent stamp that reads WISDOT COMMUNICATIONS or as the plans show. The vault lid will have 2 slots measuring ½ inch by 4 inches to use as a pull out. The vault lid will also be detectable through the inclusion of detectable metal incorporated into the lid.

60. QMP Concrete Pavement Special Requirements.

This is a specialized QMP Concrete Pavement specification modified for Zoo Interchange corridor projects.

Supplement standard spec 701, 710, 715 with the following:

A Description
A.1 General
Conform to standard spec 320, 415, 416, and 501 as modified in this special provision. Apply this special provision only to the following bid items:
320.0100 - 0199 Concrete Base (inch)
320.0300 - 0399 Concrete Base HES (inch)
415.0060 - 0199 Concrete Pavement (inch)
415.1080 - 1199 Concrete Pavement HES (inch)
415.0410 Concrete Pavement Approach Slab
415.1410 Concrete Pavement Approach Slab HES
415.0310 Concrete Alley
415.1310 Concrete Alley HES
415.0210 Concrete Pavement Gaps

A.2 Contractor Testing for Small Quantities
The requirements under this special provision apply equally to a small quantity for a particular mix design and placement method, except as follows:

- A full quality control plan need not be submitted but provide an organizational chart to the engineer including names, telephone numbers and current certifications of all persons involved in the quality control program.
- The engineer may accept aggregate gradation based upon satisfactory records of previous testing.
- No concrete control charts are required. Submit test results to the engineer each day as they become available. Assure that all properties are within the limits specified in the standard specifications for each sublot tested.
- The department will not adjust the pay for sublots with conforming compressive strength.

B Materials

B.1 Quality Control Plan

Supplement standard spec 701.2.2 and standard spec 715.1.1.4 with the following:

Ensure that the plan provides the following elements:

- The locations of the QC laboratories for mix design, aggregate testing, cylinder curing, concrete testing, and compressive strength testing.
- The frequency of contractor quality control testing, if planning to perform more frequently than section B.5 specifies.
- The format for control charts and sampling, testing, and pay adjustment data documentation, if different from the forms provided in the CMM 8.35.

B.2 Laboratory Certification

Supplement standard spec 701.2.4 with the following:

Obtain information on the Wisconsin laboratory qualification program from:

Materials Management Section
935 S. 60th Street
West Allis, Wisconsin 53214
Telephone: (414) 266-1156

B.3 Class I Concrete Mixes

B.3.1 General

For concrete base, use a grade B, B-FA, B-S, B-IS, or B-IP concrete mix conforming to standard spec 501.

Use clean, hard, durable crushed limestone with 100% fractured surfaces and free of an excess of thin or elongated pieces, frozen lumps, vegetation, deleterious substances or adherent coatings considered injurious.

Use virgin aggregates only.

B.3.2 Contractor Concrete Mix Design

Delete standard spec 501.2.5.3.4, 501.2.5.4.4, 501.3.1.1.2, 501.3.2.1, 501.3.2.2, and 501.3.2.3. Delete the maximum limit for percent passing the No. 200 (75 μm) sieve from standard spec 501.2.5.3.1 and 501.2.5.4.2.

B.3.2.1 Pavements

Replace standard spec 715.2.3.1(2) and standard spec 715.2.3.1(3) with the following:

Provide minimum cement content of 565 pounds per cubic yard (335 kg/m^3). Portland cement may be partially replaced with fly ash at a replacement ratio of not less than one pound (kg) of fly ash per one pound (kg) of cement up to a maximum fly ash content of 30% of total cementitious material. Alternatively, slag may be used as a partial replacement for cement at a replacement ratio of not less than one pound (kg) of slag per

one pound (kg) of cement up to a maximum slag content of 30% of the total cementitious material. Alternatively, A combination of fly ash and slag may be used up to a maximum combined fly ash and slag content of 30 percent. Ensure that fly ash conforms to standard spec 501.2.6 and slag conforms to standard spec 501.2.7.

The amount of deleterious substances shall not exceed the following percentages:

DELETERIOUS SUBSTANCE	PERCENT BY WEIGHT
Shale	1.0
Coal	1.0
Clay lumps	0.3
Soft fragments	3.0
Any combination of above	3.0
Thin or elongated pieces based on a 3:1 ratio	15.0
Materials passing the No. 200 (75 µm) sieve	1.5
Chert[1]	3.0

[1] Material classified lithologically as chert and having a bulk specific gravity (saturated surface-dry basis) of less than 2.45. Determine the percentage of chert by dividing the weight of chert in the sample retained on a 3/8-inch (9.5 mm) sieve by the weight of the total sample.

B.3.2.2 Combined Aggregate Gradation

Replace standard spec 715.2.2(1) items 2 and 3 with the following:

2. The percent passing the 1 inch (25 mm) sieve is less than or equal to 95.
3. The percent passing the No. 4 (4.75 mm) sieve is less than or equal to 47.

B.4 Quality Control Program

B.4.1 Control Charts

Maintain control charts when required by the test reporting procedures. Ensure that all tests are recorded and become part of the project records. Plot required test results on the control charts. Include random, non-random, and engineer requested testing but only include the contractor's randomly selected QC test results in the 4-point running average. Other process control or informational tests on the control charts may be plotted, but do not include them in 4-point running averages.

Post control charts in an engineer-approved location and update daily. Ensure that the control charts include the project number, the test number, each test element, the applicable warning and control limits, the contractor's individual test results, the running average of the last 4 data points, and the engineer's verification and independent assurance test data points. Use the control charts as part of a process control system for identifying potential problems and assignable causes. Format control charts according to CMM 8.30.

Submit control charts to the engineer in a neat and orderly manner within 10 days after completing concrete production.

B.4.2 Documentation
Replace standard spec 701.2.6(3) with the following:

Submit original paper copy testing records to the engineer in a neat and orderly manner within 10 days after completing concrete production.

B.5 Contractor Testing
B.5.1 General
Supplement standard spec 701.3 with the following:

Ensure that all test results are available for the engineer's review at any time during normal working hours.

B.5.2 Aggregate Testing
B.5.2.1 General
Supplement standard spec 710.5.6.1 with the following:

Ensure that only results of randomly selected QC tests are included in the 4-point running average.

Use control limits for sieve sizes as identified in the project concrete mix report or, if the concrete mix report is not published at the time of testing, in the contractor's quality control plan. Gradation warning limits are inside the upper and lower control limit values by one percentage point for all sieves except as follows:

- The upper warning limits for percent passing the No. 100 (150 μm) and No. 200 (75 μm) sieves are inside the control limit by 0.5 percent.
- For sieves allowing 100 percent passing, there is no upper warning limit. For sieves with 0 percent passing, there is no lower warning limit.

Replace standard spec 710.5.6.2(2) with the following:

Wash each sample of fine aggregate and the first four samples of each of the coarse aggregates. If the percent passing the No. 200 (75 μm) sieve for the combined gradation is less than the warning limit, wash at least every 10th sample of each of the coarse aggregates. If the percent passing the No. 200 (75 μm) sieve for the combined gradation is greater than or equal to the warning limit, wash each sample of the coarse aggregate until 4 consecutive tests are less than the warning limit.

B.5.2.2 Documentation
Maintain control charts at the laboratory for each aggregate stockpile. Maintain a chart for each control sieve for each material. Record contractor test results the same day tests are conducted.

B.5.2.3 Corrective Action

When the 4-point running average value approaches a warning limit, consider corrective action. Ensure that any corrective action is documented and becomes part of the project records.

Document whenever a 4-point running average exceeds the warning limits. When a second consecutive running average value exceeds the warning limits, take corrective action. Continue corrective action until two consecutive average points are within the warning limits.

Notify the engineer whenever an individual test value exceeds a control limit. Material is nonconforming when an individual test exceeds the control limit. The quantity of nonconforming material includes the material of the first test exceeding the control limit, continuing to but not including, the material from the first subsequent test that is within the control limits. The department may reject material or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

B.5.3 Aggregate Percent Passing the No. 200 Sieve

B.5.3.1 Sampling and Testing

Measure and record the percent passing the No. 200 (75 μm) sieve of both the fine and course aggregates when producing concrete pavement. Conduct tests according to AASHTO T 11 as modified by the department. Test at least one sample as early as it is practical each day and as mix or material conditions change. This testing frequency may be reduced, if the engineer approves, but maintain at least one test per 5 days of concrete production.

Document testing as specified in B.6.1, B.7.2.1, and B.7.2.2, by developing a combined gradation control chart for the percent passing the No. 200 (75 μm) sieve. Use the control limits defined in the concrete pavement mix report. Ensure that only results of QC tests are included in the 4-point running average.

B.5.3.2 Corrective Action

When an individual test approaches a warning limit, consider corrective action. Document corrective actions and include that documentation in the project records.

Notify the engineer if an individual test exceeds the warning limits. If a second consecutive individual test exceeds the warning limits, the engineer will assist in determining the course of corrective action. If the corrective action improves the property in question such that additional individual tests are within the warning limits, production may continue. If the correction does not improve the property, and new individual tests stay in the warning band, repeat the steps outlined here in B.7.3.2(2) starting with notifying the engineer.

Notify the engineer whenever an individual test value exceeds a control limit. Material is nonconforming when an individual test exceeds the control limit. The quantity of nonconforming material includes the material of the first test exceeding the control limit, continuing to but not including, the material from the first subsequent test that is within the control limits. The department may reject material or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

B.5.4 Lot and Sublot Definition
Supplement standard spec 715.3.1.2.1 with the following:

Ensure that no single lot contains concrete of more than one mix design, or more than one placement method, except for mainline pavement gaps.

B.5.4.1 Lots by Lane-Feet
Supplement standard spec 715.3.1.2.2 with the following:

Lots and sublots may include concrete from more than one day of paving.

A sublot is 350 linear feet for 3-lane paving width or 2-lane plus shoulder.

Sublots at either end of a paving pass may be greater than 1000 lane-feet in size to accommodate the actual project length and staging requirements. For ease of layout, begin the first sublot at the first even station of the project. Place the resulting partial quantity into the first full sublot.

Document the locations and quantities of integral shoulders, and identify the travel lane sublot tests used for acceptance. For a shoulder pavement placed in a separate paving pass, designate separate lots and sublots.

Ancillary concrete placed integrally with a pavement may be accepted using the tests from the pavement sublot. Document the locations and quantities of integral concrete, and identify the pavement sublot tests used for acceptance.

B.5.4.2 Non-Mainline Surfaces
Non-mainline surfaces shall be defined as all concrete surfaces under this special provision, which are not mainline travel lanes or mainline shoulders.

Lots and sublots may include concrete from more than one day of paving.

A lot consists of a minimum of 4 sublots and a maximum of 8 sublots.

All sublots within a lot shall have the same approximate size.

A sublot is a maximum of 250 cubic yards of concrete.

B.5.5 Strength Evaluation
B.5.5.1 General
Supplement standard spec 715.3.2.1(1) with the following:

Include tests of concrete base and high early strength concrete for all other QC testing, except no 28-day cylinders are required for concrete base or for high early strength concrete.

B.5.5.2 Removal and Replacement
B.5.5.2.1 Pavement
Replace standard spec 715.3.2.2.1 with the following:

If a sublot strength is less than 3000 psi (17.2 MPa), the department may direct that sublot to be cored to determine its structural adequacy and whether to direct removal. Cut and test cores according to AASHTO T 24 as and where the engineer directs. Have an HTCP certified PCC technician I perform or observe the coring. Bear all coring and testing costs, fill all core holes with an approved grout, and provide traffic control during coring at no cost to the department.

The sublot pavement is conforming if the compressive strengths of all cores from the sublot are 3000 psi (17.2 MPa) or greater or the engineer does not require coring.

The sublot pavement is nonconforming if the compressive strengths of any core from the sublot is less than 3000 psi (17.2 MPa). The department may direct removal and replacement or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

B.5.6 Air Content
Supplement standard spec 710.5.3 with the following:

The lower warning limit for air content is 0.5 percent above the lower control limit. There is no upper warning limit.

B.5.6.1 Documentation
Maintain a control chart at a fixed location on the project site. Ensure that all test results are recorded and become part of the project records. Chart all results on the same day tests are conducted. Only plot results of samples selected randomly in the 4-point running average.

B.5.6.2 Corrective Action
If an individual air test is between the lower warning limit and lower control limit, double the air content test frequency to 2 tests per compressive strength sublot. Perform one of these tests from the same concrete sample used for the QC strength cylinders. Select the second sample randomly from the half of the sublot not used for the QC strength cylinders. Determine both random test locations within a sublot before paving that sublot.

Continue testing at increased frequency until an individual test point is above the lower warning limit and below the upper control limit.

When the 4-point running average value trend is towards the lower warning limit or the upper control limit, consider corrective action.

Notify the engineer if a 4-point running average is less than the lower warning limit. If a second consecutive running average is below the warning limit, the engineer will assist in determining the course of corrective action. If the corrective action improves the property in question such that the new running average, after four additional individual tests, is between the lower warning limit and upper control limit, production may continue. If the new running average is below the lower warning limit, repeat the steps outlined here in B.7.5.2(3) starting with notifying the engineer.

If an individual air test is outside the control limits, notify the engineer, and perform additional air tests as often as it is practical on subsequent loads until the air content is inside the control limits. The material is nonconforming when an individual test exceeds the control limit. Material from the load with the first test exceeding the control limit, continuing to but not including the load with the first subsequent test within the control limits, is nonconforming. The department may direct removal and replacement or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

B.6 Department Testing

B.6.1 Verification Testing

Supplement standard spec 701.4.2 with the following:

The department will perform verification testing as follows:

	Testing Frequency Guide[1]	Sampling Material and Location	Test Method	Alternate Test Methods
Air content	1 per lot	Plastic concrete, ahead or behind[2] the paver	AASHTO T 152 as modified	Hardened air content testing[2] after construction
28-day compressive strength	1 per lot	Cylinders	AASHTO T 22, T 23 and T 141 as modified	Random cores[2] after construction

[1] The engineer may increase the frequency at start-up or as necessary to validate the quality of the materials. The engineer may reduce the frequency based on a history of satisfactory contractor or material performance.

[2] Evaluation of test results shall account for systematic differences in testing methods or sampling locations.

The department will conduct verification testing for pavement thickness as specified in standard spec 415.3.16.

Plot verification tests on the contractor's quality control charts as specified in B.4.1. Do not include verification tests in the 4-point running average.

B.6.2 Independent Assurance Testing
Supplement standard spec 701.4.3 with the following:

Plot the independent assurance tests on the contractor's quality control charts as specified in B.6.1. Do not include independent assurance tests in the 4-point running average.

B.7 Dispute Resolution
The engineer and contractor shall make every effort to avoid conflict. If a dispute between some aspect of the contractor's and the engineer's testing program does occur, seek a solution mutually agreeable to the project personnel. The department and contractor may review the data, examine data reduction and analysis methods, evaluate sampling and testing procedures, and perform additional testing. Use ASTM E 178 to evaluate potential statistically outlying data.

If the project personnel cannot resolve a dispute and the dispute affects payment or could result in incorporating nonconforming product, the department will use third party testing to resolve the dispute. The department's central office laboratory, or a mutually agreed on independent testing laboratory, will provide this testing. The engineer and contractor will abide by the results of the third party tests. The party in error will pay service charges incurred for testing by an independent laboratory. The department may use third party tests to evaluate the quality of questionable materials and determine the appropriate payment. The department may reject material or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

B.8 Acceptance
The department will accept concrete pavement based on the contractor QC tests unless it is shown through the verification or the dispute resolution process that the contractor's tests are in error.

C (Vacant)

D (Vacant)

E Payment

E.1 General

Replace standard spec 715.5.1(4) with the following:

The department will adjust pay for each lot using percent within limits (PWL) of the 28-day sublot average strengths for that lot. The department will measure PWL relative to the lower specification limit of 4500 psi.

E.2 Pavements

Replace standard spec 715.5.2(1) through standard spec 715.5.2(3) with the following:

The department will adjust pay for each lot using equation "QMP 3.02" as follows:

Percent Within Limits (PWL)	**Pay Adjustment***[1]* (dollars per square yard)
≥ 85 to 100	0
≥ 50 to < 85	(1.5/55 x PWL) – (127.5/55)
< 50	-1.5

[1] For lots with less than 4 sublots, the department will assess a disincentive based on the individual sublot average strengths. The department will reduce pay for sublots with an average strength below 4500 psi by $1.50 per square yard.

61. Abatement of Asbestos Containing Material Structure B-40-134, Item 203.0210.S.0001.

A Description

This special provision describes abating asbestos containing material on structures in accordance to the plans, the pertinent provisions of the standard specifications, and as hereinafter provided.

B (Vacant)

C Construction

Timothy G. Petrofske, License Number A11-115985, inspected Structure B-40-134 for asbestos on May 26, 2009, Regulated Asbestos Containing Material (RACM) was found on this structure in the following locations and quantities: 11.7 square feet of grey caulk in the north bridge parapet and light pole (17.5 square feet) mounted in the center fo the north parapet.

The RACM on this structure must be abated by a licensed abatement contractor. A copy of the inspection report is available from Mr. Jason Lynch, (262) 548-8701. In accordance to NR447 and DHS159, ensure that DNR or DHS receives a completed Notification of Demolition and/or Renovation (DNR Form 4500-113 (R 4/11), or subsequent revision) via U.S. mail, hand-delivery, or using the online notification system at least ten working days prior to beginning any construction or demolition. Pay all

associated fees. Provide a copy of the completed 4500-113 form and the abatement report to Mr. Jason Lynch, (262) 548-8701 and DOT BTS-ESS attn: Hazardous Materials Specialist PO Box 7965, Madison, WI. 53707-7965. In addition, comply with all local or municipal asbestos requirements.

Use the following information to complete WisDNR form 4500-113:

- Site Name: Structure B-40-134, Swan Blvd. over USH 45
- Site Address: S20 T7N R21E in the City of Wauwatosa
- Ownership Information: WisDOT Transportation Southeast Region, 141 NW Barstow St., Waukesha, WI 53187
- Contact: Mr. Jason Lynch
- Phone: (262) 548-8701
- Age: 52 years old. This structure was constructed in 1961..
- Area: 6160 SF of deck

Insert the following paragraph in Section 6.g.:

- If asbestos not previously identified is found or previously non-friable asbestos becomes crumbled, pulverized, or reduced to a powder, stop work immediately, notify the engineer, and the engineer will notify the department's Bureau of Technical Services at (608) 266-1476 for an emergency response in accordance to standard spec 107.24. Keep material wet until it is abated or until it is determined to be non-asbestos containing material.

D Measurement

The department will measure Abatement of Asbestos Containing Material (Structure), completed in accordance to the contract and accepted, as a single complete unit of work.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
203.0210.S.0001	Abatement of Asbestos Containing Material Structure B-40-134	LS

Payment is full compensation for submitting necessary forms; removing all asbestos; properly disposing of all waste materials; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the contract work.

203-005 (20120615)

62. Removing Concrete Surface Partial Depth, Item 204.0109.S.

A Description

This special provision describes removing a portion of the concrete surfaces as shown on the plans according to standard spec 204, and as hereinafter provided.

B (Vacant)

C Construction

C.1 Equipment

Use a machine that provides a surface finish acceptable to the engineer. Shroud the machine to prevent discharge of any loosened material into adjacent work areas or live traffic lanes.

Use a machine that is equipped with electronic devices that provide accurate depth, grade and slope control, and acceptable dust control system.

C.2 Methods

Remove existing concrete to the depths as shown on the plan by grinding, planing, chipping, sawing, milling, or by using other methods approved by the engineer.

Perform the removal operation in such a manner as to preclude damage to the remaining pavement and results in a reasonable uniform plane surface free of excessive large scarification marks and having a uniform transverse slope.

The sequence of removal operations shall be such that no exposed longitudinal joints 2 inches or more in depth remain during non-working hours. Windrowing or storing of the removed material on the roadway will only be permitted in conjunction with a continuous removal and pick-up operation. During non-working hours, clear the roadway of all materials and equipment.

The removed pavement shall become the property of the contractor. Properly dispose of it according to standard spec 204.3.1.3.

D Measurement

The department will not measure Removing Concrete Surface Partial Depth. The department will use Pay Plan quantity according to the article Pay Plan Quantity of these special provisions.

E Payment

The department will pay for plan quantities according to the Pay Plan Quantity article at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
204.0109.S	Removing Concrete Surface Partial Depth	SF

Payment is in full compensation for removing the concrete; and for disposing of materials.

63. Temporary Shoring, Item 206.6000.S.

A Description

This special provision describes designing and providing temporary shoring at locations the plans show.

B Materials

B.1 Shoring Design

Provide a shoring design for each location where the plan requires temporary shoring. Have a professional engineer, registered in the State of Wisconsin and knowledgeable of the specific site conditions and requirements, verify the adequacy of the design. Submit one copy of each shoring design, signed and sealed by the same professional engineer verifying the design, to the engineer for incorporation into the permanent project record.

C Construction

Provide temporary shoring at each required location conforming to the design developed for that location.

Remove the shoring when it is no longer needed unless the engineer allows it to remain in place. Backfill the space that is excavated but not occupied by the new permanent construction conforming to standard spec 206.3.13.

D Measurement

The department will measure Temporary Shoring by the square foot acceptably completed at locations the plans show, 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.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item.

ITEM NUMBER	DESCRIPTION	UNIT
206.6000.S	Temporary Shoring	SF

Payment is full compensation for designing and providing shoring; for providing a signed and sealed copy of the design; and for backfilling and removing the shoring.

The department will not pay for temporary shoring, installed for contractor convenience, that is not required in the plans.

206-005 (20110615)

64. Backfill Controlled Low Strength, Item 209.0200.S.

A Description

This special provision describes furnishing and placing a controlled low strength material designed for use as backfill in trenches for culverts, sewers, utilities, or similar structures, as backfill behind bridges abutments, or as fill for the abandonment of culverts, pipes, or tanks.

B Materials

Provide controlled low strength backfill that consists of a designed cementitious mixture of natural or processed materials. Allowable materials include natural sand, natural gravel, produced sand, foundry sand, produced gravel, fly ash, Portland cement, and other broken or fragmented mineral materials. The designed mixture shall be self-leveling and shall be free of shrinkage after hardening. Design the mixture to reach a state of hardening such that it can support foot traffic in no more than 24 hours. Provide a mixture that also meets the following requirements.

Test	Method	Value
Flow (inch)	ASTM D-6103	9 min
Compressive Strength (psi)	ASTM D-6024	20-40 @ 14 days 40-80 @ 28 days 80-120 @ 90 days

Chemical admixtures to control air content and setting time are allowable. Ten days prior to placement, furnish the engineer with a design mix detailing all components and their proportions in the mix. Also, provide documentation from the supplier of the industrial byproducts that the foundry sand and fly ash used in the mixture meet the requirements for Industrial Byproducts Categories 1, 2, 3, or 4 in NR 538 of the Wisconsin Administrative Code for use as a confined geotechnical fill.

C Construction

Place controlled low strength backfill at the locations and to the lines and grades as shown on the plan. Proportion and mix materials to produce a product of consistent texture and flow characteristics. The engineer may reject any materials exhibiting a substantial change in properties, appearance, or composition.

If the official Weather Bureau forecast for the construction site predicts temperatures at or below freezing within the next 24 hours after placement of controlled low strength backfill, protect the placed materials from freezing during that time period. If the temperature is not forecast to rise above 40º F for 72 hours after placement, the engineer may require protection from freezing for up to 72 hours.

No controlled low strength backfill shall be allowed to enter any stream, lake, or sewer system. The contractor shall be responsible for any clean up or remediation costs resulting from such occurrences.

D Measurement

The department will measure Backfill Controlled Low Strength in volume by the cubic yard of material placed and accepted. Such volume shall be computed from actual measurements of the dimensions of the area to be backfilled. In irregular or inaccessible areas, the engineer may allow volume to be determined by other appropriate methods.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
209.0200.S	Backfill Controlled Low Strength	CY

Payment is full compensation for designing the mix; supplying all materials; preparing the proportioned mix; hauling it to the construction site; placing the material; and protecting it from freezing.

209-010 (20090901)

65. QMP Ride; Incentive IRI Ride, Item 440.4410.S.

A Description

(1) This special provision describes profiling pavements with a non-contact profiler, locating areas of localized roughness, and determining the International Roughness Index (IRI) for each wheel path segment.

(2) Profile the final riding surface of all mainline pavements, bridges, approaches, and railroad crossings. Roundabouts, and pavements within 150 feet of the points of curvature of roundabout intersections, are excluded from the testing requirements of this provision.

(3) Pavements that are excluded from localized roughness according to C.5.2(1), bridges, and roundabout intersections are subject to engineer-directed straightedging according to the standard specifications. All other surfaces being tested under this provision are exempt from straightedging requirements.

B (Vacant)

C Construction

C.1 Quality Control Plan

(1) Submit a written quality control plan to the engineer at or before the pre-construction conference. Ensure that the plan provides the following elements:

1. An organizational chart with names, telephone numbers, current certifications and/or titles, and roles and responsibilities of all quality control personnel.
2. The process by which quality control information and corrective action efforts will be disseminated to the appropriate persons. Include a list of recipients, the communication means that will be used, and action time frames.
3. The methods and timing used for monitoring and/or testing ride quality throughout the paving process.
4. The evaluation process that will be used to make improvements to the construction operations if poor ride quality is found during the process control testing.
5. The methods that will be used to ensure a smooth pavement transition when matching into existing surfaces such as bridges, bridge approaches, or railroad crossings.

6. The segment locations of each profile run used for acceptance testing.
7. The approximate timing of acceptance testing in relation to the paving operations.

C.2 Personnel

(1) Have a profiler operator, certified under the department's highway technician certification program (HTCP), operate the equipment, collect the required data, and document the results using the methods taught in the HTCP profiling course.

C.3 Equipment

(1) Furnish a profile-measuring device capable of measuring IRI from the list of department-approved devices published on the department's web site:

http://roadwaystandards.dot.wi.gov/standards/qmp/index.htm

(2) Unless the engineer and contractor mutually agree otherwise, arrange to have a calibrated profiler available when paving the final riding surface. Calibrate the profiler according to the manufacturer's recommendations. Provide the engineer with a copy of the most recent calibration results, signed by the certified profiler operator.

(3) Perform daily calibration verification of the profiler using test methods according to the manufacturer's recommendations. Notify the engineer prior to performing the calibration verification. If the engineer requests, arrange to have the engineer observe the calibration verification and operation. Maintain records of the calibration verification activities, and provide the records to the engineer upon request.

C.4 Testing

C.4.1 Run and Reduction Parameters

(1) Enter the equipment-specific department-approved filter settings and parameters listed on the department's ride web site.

C.4.2 Contractor Testing

(1) Operate profilers within the manufacturer's recommended speed tolerances. Perform all profile runs in the direction of travel. Measure the longitudinal profile of each wheel track of each lane. The wheel tracks are 6.0 feet apart and centered in the traveled way of the lane.

(2) Coordinate with the engineer to schedule profile runs for acceptance. The department may require testing to accommodate staged construction or if corrective action may be required.

(3) Measure the profiles of each standard or partial segment. Define primary segments starting at a project terminus and running contiguously along the mainline to the other project terminus. Field-locate the beginning and ending points for each profile run. When applicable, align segment limits with the sublot limits used for testing under the QMP Concrete Pavement specification. Define segments one wheel path wide and distinguished by length as follows:

1. Standard segments are 500 feet long.
2. Partial segments are less than 500 feet long.

(4) Treat partial segments as independent segments.

(5) The department will categorize each standard or partial segment as follows:

Segments with a Posted Speed Limit of 55 MPH or Greater	
Category	**Description**
HMA I	Asphalt pavement with multiple opportunities to achieve a smooth ride. The following operations performed under this contract are considered as opportunities: a layer of HMA, a leveling or wedging layer of HMA, and diamond grinding or milling of the underlying pavement surface.
HMA II	Asphalt pavement with a single opportunity to achieve a smooth ride.
HMA III	Asphalt pavement segments containing any portion of a bridge, bridge approach, railroad crossing, or intersection. An intersection is defined as the area within the points of curvature of the intersection radii.
PCC II	Concrete pavement including all gaps.
PCC III	Concrete pavement segments containing any portion of a bridge, bridge approach, railroad crossing, or intersection. An intersection is defined as the area within the points of curvature of the intersection radii.

Segments with Any Portion Having a Posted Speed Limit Less Than 55 MPH	
Category	**Description**
HMA IV	Asphalt pavement including intersections, bridges, approaches, and railroad crossings.
PCC IV	Concrete pavement including gaps, intersections, bridges, approaches, and railroad crossings.

C.4.3 Verification Testing

(1) The department may conduct verification testing (QV) to validate the quality of the product. A certified HTCP profiler technician will perform the QV testing. The department will provide the contractor with a listing of the names and telephone numbers of all verification personnel for the project.

(2) The department will notify the contractor before testing so the contractor can observe the QV testing. Verification testing will be performed independent of the contractor's QC work using separate equipment from the contractor's QC tests. The department will provide test results to the contractor within 1 business day after the department completes the testing.

(3) The engineer and contractor will jointly investigate any testing discrepancies. The investigation may include additional testing as well as review and observation of both the department's and contractor's testing procedures and equipment. Both parties will document all investigative work.

(4) If the contractor does not respond to an engineer request to resolve a testing discrepancy, the engineer may suspend production until action is taken. Resolve disputes as specified in C.6.

C.4.4 Documenting Profile Runs

(1) Compute the IRI for each segment and analyze areas of localized roughness using the ProVAL software. Within 5 business days after completing a final acceptance profile run, submit a copy of the ProVAL smoothness assurance report showing the IRI for each segment and the areas of localized roughness exceeding an IRI of 175 in/mile. The ProVAL software and department-specified inputs are available on the department's web site:

http://roadwaystandards.dot.wi.gov/standards/qmp/index.htm

(2) As part of the profiler software outputs and ProVAL reports, document the areas of localized roughness and the locations of individual features including construction joints, structure limits, design features, utility fixtures, and other features that might affect the department's evaluation of ride quality. Field-locate the areas of localized roughness prior to the engineer's assessment for corrective actions.

(3) Within 5 business days after completing profiling of the pavement covered under this special provision, unless the engineer and contractor mutually agree to a different timeline, submit the electronic ProVAL project file containing the .ERD files for each profiler acceptance run. Submit profile data using the department's Materials Reporting System (MRS) software available on the department's web site:

http://www.atwoodsystems.com/mrs

C.5 Corrective Actions

C.5.1 General

(1) Correct the ride as the engineer directs. The department will independently assess whether a repair will help or hurt the long-term pavement performance and/or public perception of the ride before deciding on corrective action.

C.5.2 Corrective Actions for Localized Roughness

(1) Apply localized roughness requirements to all pavements, including HMA III, PCC III, HMA IV, and PCC IV; except localized roughness requirements will not be applied to pavements within 25 feet of the following surfaces if they are not constructed under this contract: bridges, bridge approaches, or railroad crossings. The department may direct the contractor to make corrections to the pavement within the 25-foot exclusionary zones and will compensate the contractor for the extra work.

(2) The engineer will review each individual wheel track for areas of localized roughness. The engineer will assess areas of localized roughness that exceed an IRI of 175 in/mile and do one of the following for each location:

1. Direct the contractor to correct the area to minimize the effect on the ride.
2. Leave the area of localized roughness in place with no pay reduction.

3. Except for HMA IV and PCC IV segments, assess a pay reduction as follows for each location in each wheel path:

Localized Roughness IRI (in/mile)	Pay Reduction[1] (dollars)
> 175	(Length in Feet) x (IRI – 175)

[1] A maximum $250 pay reduction may be assessed for locations of localized roughness that are less than or equal to 25 feet long. Locations longer than 25 feet may be assessed a maximum pay reduction of $10 per foot.

(3) The engineer will not direct corrective action or assess a pay reduction for an area of localized roughness without independent identification of that area as determined by physically riding the pavement. For corrections, use only techniques the engineer approves.

(4) Re-profile corrected areas to verify that the IRI is less than 140 in/mile after correction. Submit a revised ProVAL smoothness assurance report for the corrected areas to validate the results.

C.5.3 Corrective Actions for Excessive IRI

(1) If an individual segment IRI exceeds 140 in/mile for HMA I, HMA II, and PCC II pavements after correction for localized roughness, the engineer may require the contractor to correct that segment. Correct the segment final surface as follows:

HMA I: Correct to an IRI of 60 in/mile using whichever of the following methods the engineer directs:
Mill and replace the full lane width of the riding surface excluding the paved shoulder.
Correct the full lane width using techniques approved by the engineer.

HMA II: Correct to an IRI of 85 in/mile using whichever of the following methods the engineer directs:
Mill and replace the full lane width of the riding surface excluding the paved shoulder.
Correct the full lane width using techniques approved by the engineer.

PCC II: Correct to an IRI of 85 in/mile using whichever of the following methods the engineer directs:
Continuous diamond grinding of the full lane width of the riding surface including adjustment of the paved shoulders.
Correct the full lane width using techniques approved by the engineer.

(2) Re-profile corrected segments to verify that the final IRI meets the above correction limits and there are no areas of localized roughness. Submit a revised ProVAL smoothness assurance report for the corrected areas to validate the results. Segments failing these criteria after correction are subject to the engineer's right to adjust pay for non-conforming work under standard spec 105.3.

C.6 Dispute Resolution

(1) The engineer and contractor should make every effort to avoid conflict. If a dispute between some aspect of the contractor's and the engineer's testing program does occur, seek a solution mutually agreeable to the project personnel. The department and contractor may review the data, examine data reduction and analysis methods, evaluate testing procedures, and perform additional testing.

(2) If the project personnel cannot resolve a dispute and the dispute affects payment or could result in incorporating nonconforming pavement, the department will use third party testing to resolve the dispute. The department's Quality Assurance Unit, or a mutually agreed on independent testing company, will provide this testing. The engineer and contractor will abide by the results of the third party tests. The party in error will pay service charges incurred for testing by an independent tester. The department may use third party tests to evaluate the quality of questionable pavement and determine the appropriate payment.

D Measurement

(1) The department will measure Incentive IRI Ride by the dollar, adjusted as specified in E.2.

E Payment

E.1 Payment for Profiling

(1) Costs for furnishing and operating the profiler, documenting profile results, and correcting the final pavement surface are incidental to the contract.

E.2 Pay Adjustment

(1) The department will pay incentive for ride under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
440.4410.S	Incentive IRI Ride	DOL

(2) Incentive payment is not limited, either up or down, to the amount the schedule of items shows.

(3) The department will administer disincentives for ride under the Disincentive IRI Ride administrative item.

(4) The department will not assess disincentive on HMA III or PCC III segments. Incentive pay for HMA III and PCC III segments will be according to the requirements for the category of the adjoining segments.

(5) The department will adjust pay for each segment based on the initial IRI for that segment before any corrective action is taken. The department will base disincentives on the IRI after correction for pavement meeting the following conditions:

All Pavement: The corrective work is performed in a contiguous, full lane width section 500 feet long, or a length as agreed with the engineer.

HMA Pavements: The corrective work is a mill and inlay or full depth replacement and the inlay or replacement layer thickness conforms to standard spec 460.3.2.

Concrete Pavements: The corrective work is a full depth replacement and conforms to standard spec 415.

(6) The department will adjust pay for 500-foot long standard segments nominally one wheel path wide using equation "QMP 1.03" as follows:

HMA I	
Initial IRI (inches/mile)	**Pay Adjustment[1] (dollars per standard segment)**
< 30	250
≥ 30 to <35	1750 – (50 x IRI)
≥ 35 to < 60	0
≥ 60 to < 75	1000 – (50/3 x IRI)
≥ 75	-250

HMA II and PCC II	
Initial IRI (inches/mile)	**Pay Adjustment[1] [2] (dollars per standard segment)**
< 50	250
≥ 50 to < 55	2750 – (50 x IRI)
≥ 55 to < 85	0
≥ 85 to < 100	(4250/3) – (50/3 x IRI)
≥ 100	-250

HMA IV and PCC IV	
Initial IRI (inches/mile)	**Pay Adjustment[1] [2] (dollars per standard segment)**
< 50	250
≥ 50 to < 75	750 – (10 x IRI)
≥ 75	0

[1] If the engineer directs placing upper layer asphaltic mixtures between October 15 and May 1 for department convenience as specified in standard spec 450.3.2.1(5), the department will not adjust pay for ride on pavement the department orders the contractor to place when the temperature, as defined in standard spec 450.3.2.1(2), is less than 36 F.

[2] If the engineer directs placing concrete pavement for department convenience, the department will not adjust pay for ride on pavement the department orders the contractor to place when the air temperature falls below 35 F.

(7) The department will prorate the pay adjustment for partial segments based on their length.

440-010 (20100709)

66. Architectural Surface Treatment R-40-484, Item 517.1050.S.0001; Architectural Surface Treatment R-40-485, Item 517.1050.S.0002.

A Description

Construct a concrete masonry architectural surface treatment on the exposed concrete surfaces of the structure, as detailed in the plans and as hereinafter provided.

B Materials

Use form liners that attach easily to the forming system, and do not compress more than ¼-inch when poured at a rate of 10 vertical feet/hour.

Use a release agent that is compatible with the form liner and coloring materials.

Wall ties shall have set "break-backs" at a minimum of ¾-inches from the finished concrete surface.

C Construction

C.1 Equipment

Equipment and tools necessary for performing all parts of the work shall be satisfactory as to design, capacity, and mechanical condition for the purposes intended. Repair, improve, replace, or supplement all equipment that is not maintained in full working order, or which is proven inadequate to obtain the results prescribed.

C.2 Form Liner Preparation

Clean the form liner prior to each pour and ensure that it is free of any build-up. Visually inspect each liner for blemishes or tears, and repair if necessary per manufacturer's recommendations.

Apply form release per manufacturer's recommendations.

C.3 Form Liner Attachment

Place adjacent liners less than ¼-inch from each other, attach liner securely to forms in accordance to the manufacturer's recommendations, and coordinate wall ties with form liner and form manufacturer, e.g., diameter, size, and frequency.

C.4 Surface Finishing
Ensure that the textured surface is free of laitance; sandblasting is not permitted.

Grind or fill pouring blemishes.

D Measurement
The department will measure Architectural Surface Treatment (Structure) in area by the square foot of architectural surface, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
517.1050.S.0001	Architectural Surface Treatment R-40-484	SF
517.1050.S.0002	Architectural Surface Treatment R-40-485	SF

Payment is full compensation for producing the proposed architectural surface treatment including: preparing the foundation; finishing and protecting the surface treatment; and for properly disposing of surplus material.
517-150 (20110615)

67. Fence Temporary, Item 616.0600.S.

A Description
This special provision describes furnishing, erecting, and removing temporary fencing at the locations shown on the plans and as directed by the engineer.

B (Vacant)

C Construction
Construct fence to the minimum strength and height required to contain livestock, as approved by the engineer.

D Measurement
The department will measure Fence Temporary in place by the linear foot from end posts, center to center, along the ground line.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
616.0600.S	Fence Temporary	LF

Payment is full compensation for furnishing all materials; erecting posts and fence; and for removing and disposing of fencing.
616-025 (20101008)

68. Pavement Marking Grooved Wet Reflective Contrast Tape 4-Inch, Item 646.0841.S; 8-Inch, Item 646.0843.S.

A Description

This special provision describes furnishing, grooving and installing preformed wet reflective pavement marking contrast tape for grooved applications as shown on the plans, according to standard spec 646, and as hereinafter provided.

B Materials

Furnish wet reflective pavement marking contrast tape and adhesive material, per manufacturer's recommendation if required, from the department's approved products list.

Furnish a copy of the manufacturer's recommendations to the engineer before preparing the pavement marking grooves.

C Construction

C.1 General

For quality assurance, provide the engineer and the region's Marking Section evidence of manufacturer training in the proper placement and installation of pavement marking contrast tape.

Plane the grooved lines according to details in the plan and per manufacturer's recommendations. Use grooving equipment with a free-floating, independent cutting head. Plane a minimum number of passes to create a grooved surface per manufacturer's recommendations.

C.2 Groove Depth

Cut the groove to a depth of 120 mils ± 10 mils from the pavement surface or, if tined, from the high point of the tined surface. To measure the depth, the contractor may use a depth plate placed in the groove and a straightedge placed across the plate and groove, or the contractor may use a straightedge placed perpendicular to the groove. The department may periodically check groove depths.

C.3 Groove Width – Longitudinal Markings

Cut the groove one-inch wider than the width of the tape.

C.4 Groove Position

Position the groove edge according to plan details. Groove a minimum of 4 inches, but not greater than, 12 inches from both ends of the tape segment. Achieve straight alignment with the grooving equipment.

C.5 Groove Cleaning

C.5.1 Concrete

Cooling the cutting head with water may be necessary for some applications and equipment. If cooling water is necessary, flush the groove immediately with high-

pressure water after cutting to remove any build-up of cement dust and water slurry. If this is not done, the slurry may harden in the groove.

If water is used in the grooving process, allow the groove to dry a minimum of 24 hours after groove cleaning, and prior to pavement marking application. The groove surface shall be clean and dry before applying the adhesive, and the pavement marking tape. Use a high-pressure air blower with at least 185 ft^3/min air flow and 120 psi air pressure to clean the groove; use of the air blower does not decrease the amount of time required for the groove to dry.

C.5.2 New Asphalt
Groove pavement five or more days after paving.

Use a high-pressure air blower with at least 185 ft^3/min air flow and 90 psi air pressure to clean the groove.

C.5.3 Existing Asphalt
Check for structural integrity in supporting grooving operations. If the structural integrity of the asphalt pavement is inadequate to support grooving operations, immediately notify the engineer.

Use a high-pressure air blower with at least 185 ft^3/min air flow and 90 psi air pressure to clean the groove.

C.6 Tape Application
Apply the tape when both the air and surface temperature are 40 degrees F and rising.

Apply tape in the groove as per manufacturer's recommendations. If manufacturer's recommendations require surface preparation adhesive

- For the Southeast Region and the ozone non-attainment Northeast Region counties of Sheboygan, Manitowoc, and Kewaunee:
- Apply SPA-60 during May 1 to September 30, both dates inclusive due to Volatile Organic Compound Limitations..
- Apply P-50 during October 1 to April 30, both dates inclusive.
- For the remainder counties:
- Apply either adhesive.

Refer to the manufacturer's instructions for determining when the surface preparation adhesive is set.

Tamp the wet reflective pavement marking contrast tape with a tamper cart roller, with a minimum of a 200-lb load, cut to fit the groove. Tamp a minimum of three complete cycles (6 passes) with grooved modified tamper roller cart.

D Measurement
The department will measure Pavement Marking Grooved Wet Reflective Contrast Tape (Width) for grooved applications in length by the linear foot of tape placed according to the contract and accepted.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
646.0841.S	Pavement Marking Grooved Wet Reflective Contrast Tape 4-Inch	LF
646.0843.S	Pavement Marking Grooved Wet Reflective Contrast Tape 8-Inch	LF

Payment is full compensation for cleaning and preparing the pavement surface; furnishing and installing the material; and for removing temporary pavement marking, if necessary.
646-022 (20120615)

69. Install Conduit Into Existing Item, Item 652.0700.S.

A Description
This special provision describes installing proposed conduit into an existing manhole, pull box, junction box, communication vault, or other structure.

B Materials
Use nonmetallic conduit, as provided and paid for under other items in this contract. Furnish backfill material, topsoil, fertilizer, seed, and mulch conforming to the requirements of pertinent provisions of the standard specifications.

C Construction
Expose the outside of the existing structure without disturbing existing conduits or cabling. Drill the appropriate sized hole for the entering conduit(s) at a location within the structure without disturbing the existing cabling and without hindering the installation of new cabling within the installed conduit. Fill void area between the drilled hole and conduit with an engineer-approved filling material to protect against conduit movement and entry of fill material into the structure. Tamp backfill into place.

D Measurement
The department will measure Install Conduit Into Existing System by the unit, acceptably installed. Up to five conduits entering a structure per entry point into the existing structure will be considered a single unit. Conduits in excess of five, or conduits entering

at significantly different entry points into the existing pull box, manhole, or junction box will constitute multiple units of payment.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
652.0700.S	Install Conduit Into Existing Item	Each

Payment is full compensation for excavating, drilling holes; furnishing and installing all materials, including bricks, coarse aggregate, sand, bedding, and backfill; for excavating and backfilling; and for furnishing and placing topsoil, fertilizer, seed, and mulch in disturbed areas; for properly disposing of surplus materials; and for making inspections.

652-070 (20100709)

70. Install Pole Mounted Cabinet, Item 673.0225.S.

A Description

This special provision describes installing department furnished aluminum enclosures on poles for intelligent transportation systems equipment.

B Materials

Use stainless steel bolts, nuts, and washers unless otherwise specified.

All conductors, terminals, and parts that could be hazardous to maintenance personnel shall be protected with suitable insulating material.

The cabinet will be equipped with service panels. Two panels shall be provided and mounted on the cabinet sidewalls. The left side panel shall be designated as "Input/Communications," and the right side panel shall be designated as the "Service Panel."

The service panel will be equipped with a four-outlet handi-box. Wire the handi-box to the series portion of the filtering surge protector.

Use metallic conduit, fitting, and adapters required from the underground conduit transition point to the cabinet as part of this item. A typical installation requires on 2-inch conduit. Use metallic conduits according to standard spec 652.

C Construction

Fasten the field cabinet securely onto a pole. Provide bolted stainless steel connections with lock washers, locking nuts, or other engineer-approved means to prevent the connection nuts from backing off. Isolate dissimilar materials from one another using stainless steel fittings. Make all power connections to the cabinet as specified in standard spec 656.

Drill and tap the cabinet, as necessary, to mount the terminal blocks and other attachments to the services panel, to provided and entrance on the back of the cabinet for cable from the pole mounted intelligent transportation system equipment, and to mount the service panel to the cabinet as shown in the detail. Remove all sharp edges or burrs, or both, caused by cutting or drilling process. Seal all opening to prevent water from entering the cabinet. Mount the surge protector to the service panel.

Install metallic conduit on the exterior of the pole (for entrance to the cabinet from the ground) as shown in the plans, and according to the applicable requirements of standard spec 652.

D Measurement
The department will measure Install Pole Mounted Cabinet as each individual assembly, acceptably completed

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
673.0225.S	Install Pole Mounted Cabinet	Each

Payment is full compensation for installing the pole mounted cabinet; for making all connections conduit/wire entrances; and for furnishing all testing.
673-010 (20100630)

71. Install Ethernet Switch, Item 675.0400.S.

A Description
This special provision describes installing an Ethernet switch, and providing all necessary associated wiring.

B Materials
The department will furnish the Ethernet switch. Provide all necessary cables between the Ethernet switch and terminal server or other device.

C Construction
Install the Ethernet switch in a new or existing field cabinet. Connect it to devices as shown on the plans, or as directed by the engineer.

D Measurement
The department will measure Install Switch by the unit, installed in accordance to the contract, tested and accepted.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
675.0400.S	Install Ethernet Switch	Each

Payment is full compensation for installation of the Ethernet switch; furnishing all necessary incidental hardware; and making all necessary connections.
675-040 (20100630)

72. Install Video Encoder, Item 677.0300.S.

A Description
This special provision describes installing a state-furnished video encoder in a pole mounted cabinet or field cabinet as shown on the plans and as hereinafter provided.

B Materials
Provide Category 5 or better Ethernet cable to connect the Ethernet video encoder to the Ethernet switch. The department will furnish the video encoder or it will be an existing and salvaged encoder.

C Construction
Make the necessary electrical and communication network connections to the video encoder. Mount the video encoder in the pole mounted cabinet or field cabinet. Program the video encoder according to the manufacturer's instructions.

D Measurement
The department will measure Install Video Encoder by each individual assembly, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
677.0300.S	Install Video Encoder	Each

Payment is full compensation for installing the video encoder in a pole mounted cabinet or field cabinet; for making all connections; and for furnishing all programming.
677-030 (20100630)

73. Excavation, Hauling, and Reuse of Solid Waste Soil, Item SPV.0035.0030.

A General
A.1 Description
This special provision describes excavating, relocating, and reusing solid waste soil on-site within the project limits.

Perform this work in accordance to the requirements of section 205 and section 207 of the standard specifications and with pertinent parts of Chapters NR 700-754 of the Wisconsin Administrative Code, as supplemented herein. Per NR 718.07, a solid waste collection and transportation service-operating license is required under NR 502.06 for each vehicle used to transport impacted soil.

A.2 Notice to the Contractor – Impacted Soil Locations

The department completed testing for soil contamination for locations within this project where excavation is required.

Testing indicated that soil containing relatively low-level concentrations of sodium, chloride, metals, foundry wastes, pesticides and/or petroleum volatile organic compounds is present throughout the project limits. Once the areas of higher contamination have been excavated and transported to a solid waste landfill (as outlined elsewhere in the special previsions), all other soils excavated by the project from Swan Boulevard Station 166BV+92 to 185BV+00, from project limits right to left are to be reused at the location indicated below. Approximately 45,000 cubic yards of excavation, other than hot spot areas for direct landfill (as outlined elsewhere in the special previsions), will be excavated by the project and reused at the location specified in A.3.

A.3 Reuse of Solid Waste Soils

Low-level impacted soil described in A.2 is characterized as Solid Waste Soil and shall be reused as embankment beneath a minimum 2-foot of clay cap, outlined elsewhere in the Special Provisions, and except where shown on the plans beneath a waterproof membrane. Waterproof membrane outlined elsewhere in the Special Provisions. The low-level impacted soil shall be reused at the following location:

- 768WD+00 to 775WD+00

Soils that are reused as project fill should not contain crushed asphalt or other exempt solid wastes.

A.4 Excavation Management Plan Approval

The excavation management plan for this project has been designed to minimize the off-site disposal of impacted material. The excavation management plan, including these special provisions, has been developed in cooperation with the WDNR. The WDNR concurrence letter is on file at the Wisconsin Department of Transportation. For further information regarding previous investigation and remediation activities in these areas contact:

Name:	Michael Cape, P.G.
Address:	141 NW Barstow Street, Waukesha, WI 53187-0798
Phone:	(262) 548-5930
Fax:	(262) 548-6891
E-mail:	michael.cape@dot.state.wi.us

A.5 Coordination
Coordinate work under this contract with the environmental consultant:

Consultant:	TRC Environmental Corporation
Address:	150 N. Patrick Blvd. Ste. 180, Brookfield, WI 53045
Contact:	Mr. Ken Yass, P.E., CHMM
Phone:	(262) 901-2145
Fax:	(262) 879-1220
E-mail:	kyass@trcsolutions.com

The role of the environmental consultant will be limited to:

1. Determining the location and limits of solid waste soil to be excavated and reused as fill based on soil analytical results from previous investigations, visual observations, and field screening of soil that is excavated;

2. Documenting that activities associated with management of solid waste soil are in conformance with the solid waste management methods for this project as specified herein; and,

3. Obtaining the necessary approvals for the reuse of solid waste soils from the WDNR.

Provide at least a 14-calendar day notice of the preconstruction conference date to the environmental consultant. At the preconstruction conference, provide a schedule for all excavation activities to the environmental consultant. Coordinate with the environmental consultant to ensure that the environmental consultant is present during excavation activities in the impacted area. Notify the environmental consultant at least three calendar days prior to commencement of excavation activities. Perform excavation work in the impacted area on a continuous basis until excavation work is completed. Do not transport impacted soil offsite without prior approval from the environmental consultant.

A.6 Health and Safety Requirements
Supplement standard spec 107.1 with the following:

During excavation activities, expect to encounter soil impacted with sodium, chloride, metals, foundry wastes, pesticides and/or petroleum volatile organic compounds. Site workers taking part in activities that will result in the reasonable probability of exposure to safety and health hazards associated with hazardous materials shall have completed health and safety training that meets the Occupational Safety and Health Administration (OSHA) requirements for Hazardous Waste Operations and Emergency Response (HAZWOPER), as provided in 29 CFR 1910.120.

Prepare a site-specific Health and Safety Plan, and develop, delineate and enforce the health and safety exclusion zones as required by 29 CFR 1910.120. Submit the site-specific health and safety plan and written documentation of up-to-date OSHA training to the engineer prior to the start of work.

B (Vacant)

C Construction

Supplement standard spec 205.3 with the following:

Control operations in the impacted area to minimize the quantity of impacted soil excavated.

The environmental consultant will periodically monitor soil excavated from the impacted areas identified in A.2 above. The environmental consultant will evaluate excavated soil based on field screening results, visual observations, and soil analytical results from previous environmental investigations. Assist the environmental consultant in collecting soil samples for evaluation using excavation equipment. The sampling frequency shall be a maximum of one sample for every 20 cubic yards excavated.

Verify that the vehicles used to transport material are licensed for such activity in accordance to applicable state and federal regulations. Do not transport regulated solid waste identified in A.2 above off-site.

During excavations, larger chunks of clean concrete (~2 cubic feet), asphalt and bricks will be segregated from the fill, to the extent practical and managed as common excavation. Under NR 500.08 this material is exempt from licensing and requirements of Wisconsin Administrative Code NR 500-538 of the solid waste regulations, and will be reused as designated by the engineer as fill on the project, or it will be disposed of off-site at the contractor's disposal site(s).

Given the relatively shallow depth of planned hot spot excavation, excavation dewatering is not anticipated.

Construct the reuse embankment in accordance to standard spec 207.3.

D Measurement

The department will measure Excavation, Hauling, and Reuse of Solid Waste Soil in cubic yards of solid waste soil reused, acceptably completed, as documented by the engineer.

E Payment

The department will pay for measured quantities specified herein at the contract unit price under the following item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0035.0030	Excavation, Hauling, and Reuse of Solid Waste Soil	CY

Payment is full compensation for excavating, segregating, loading, hauling, and reuse of solid waste soil identified in A.2 above; obtaining solid waste collection and transportation service operating licenses; and for assisting in the collection soil samples for field evaluation.

74. Clay Cap, Item SPV.0035.0031.

A Description

This special provision describes furnishing and installing the clay cap to the surface of the stock pile soil shown in the plans.

B Materials

The clay material can be acquired on site or be furnished by the contractor from a borrow site. The contractor shall submit laboratory test results of the clay cap material from onsite or borrow source(s) documenting that the clay meets or exceeds the clay material specifications prior to the start of cap construction and prior to bringing borrow to the site. The laboratory tests shall be conducted on clay material from on site or borrow areas at the frequency listed below and be performed in accordance to ASTM standard methods as listed below. The test results shall be submitted to the engineer for review and approval prior to construction. The following tests are required:

- A minimum of 50 percent by weight which passes the 200 sieve.
- Liquid Limit (LL): 22 percent or greater.
- Plasticity Index (PI): 12 percent or greater.

Clay not meeting these three requirements shall be removed and disposed of by the contractor without additional payment.

In addition to the three above testing requirements, the contractor shall provide additional test results for any clay furnished to be used for informational purposes. These testing results are listed below.

Reference standards are listed as follows:

American Society for Testing and Materials (ASTM):

- **ASTM D698** Test for Moisture-Density Relations of Soils and Soil Aggregate Mixtures Using 5.5 lb Rammer and 12 in. Drop (Standard Proctor).
- **ASTM D2922** Test for Density of Soil In Place by Nuclear Method (Shallow Depth).
- **ASTM D1140** Test Method for Amount of Materials in Soils Finer than the No. 200 Sieve.
- **ASTM D422** Method for Particle-Size Analysis of Soils.
- **ASTM D4318** Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
- **ASTM D2487 C**lassification of Soils for Engineering Purposes.

Table of Testing for Clay Cap Material

Test	Number of Required Tests: One Borrow Source Only and Also For Onsite Clay	Number of Required Tests: Multiple Borrow Sources	Minimum Requirement
Grain Size Analysis	3 (Total)	1 test/4,500 cy or less/site[(a)]	≥ 50% by Wt. Passing 200 Sieve
Hydrometer Analysis	3 (Total)	1 test/4,500 cy or less/site[(a)]	Info. Only
Atterberg Limits (ASTM D4318)	3 (Total)	1 test/2,250 cy or less/site[(a)]	LL ≥ 22% PI ≥ 12%
USCS Classification (ASTM D2487)	3 (Total)	1 test/2,250 cy or less/site[(a)]	Info. Only
Standard Proctor Analysis 5-Point Curve (Minimum) (ASTM D698)	2 (Total)	1 test/5,000 cy or less/site[(b)]	Info. Only

[(a)] For each clay borrow site to be used, one test Grain Size and Hydrometer shall be performed and provided to engineer for each 4,500 cubic yards or less of clay to be obtained from each of the borrow sources. For each clay borrow site to be used, one Atterberg Limits and USCS Classification shall be performed and provided to engineer for each 2,250 cubic yards or less of clay to be obtained from each of the borrow sources.

[(b)] For each clay borrow site to be used, one test shall be performed and provided to engineer for each 10,000 cubic yards or less of clay to be obtained from each of the borrow sources.

C Construction

C.1 Clay Cap Placement

C.1.2 Clay Cap

Before the waste is placed, the existing surface will need to be scarified to a 1-foot depth and re-compacted to at least 95 percent of the Standard Proctor (ASTM D-698) value for the soil at a moisture content between 90 percent to 105 percent of the optimum moisture content. Clay cap can only be placed after testing confirms that the subgrade has achieved the density and moisture content requirements

After the grading is complete, the contractor shall place and compact approved clay cap material in four 6-inch lifts for a total compacted thickness of two feet.

Contractor shall notify the engineer at least three days prior to start of placing clay cap.

Lift thickness shall be 6 inches maximum after compaction.

Clay cap shall be a minimum of two feet thick measured perpendicular to the surface.

Compact clay to a minimum of 95% Standard Proctor Maximum Density (ASTM D698) with a sheepsfoot roller or other suitable equipment.

Placement of each lift shall not proceed until all required clay testing and documentation has been completed for the previous lift.

The moisture content of the clay during placement shall be:

- No drier than 90 percent of the optimum moisture content as determined by ASTM D698.
- No wetter than 105 percent above the optimum moisture content as determined by ASTM D698.

Excessively dry or wet clay soil shall be properly moisture-conditioned to within the above range of values.

Provide all equipment necessary to adjust clay to the proper moisture content for compaction.

The contractor is responsible for construction of the clay cap per the plans. If the in-place clay cap fails to meet the requirements of this section, the contractor shall be responsible for the following:

- Removing and replacing or reworking any portion of the clay cap not meeting the project specifications until project specifications are met.
- The contractor shall not be compensated for removing, replacing and reworking clay cap not meeting the specification requirements.

C.1.4 Testing of Constructed Soils

As construction of the clay cap proceeds, the department will provide all required on-site quality control testing of installed materials as follows:

- Record thickness of clay cap.
- Density testing (ASTM D2922) on after the clay is placed and compacted. One (1) test per lift (minimum) or one test for every 25,000 sq. ft. of lift constructed, whichever is greater.
- HTCP certified person will perform all necessary sampling, testing, data analysis and documentation during all Clay Cap placement and compaction.
- One Standard Proctor (ATM D698) for each soil type used but no less than one Proctor analysis for each 5,000 cubic yards of clay placed.

- After the cap is placed and compacted, one Shelby tube sample and bulk sample shall be retrieved and analyzed for the following:
- Grain size distribution and hydrometer analysis.
- Moisture content.
- Dry density.
- Atterberg Limits.

The contractor shall provide the following:

- Access for on-site testing, inspection, and documentation.
- Machinery required to grade/blade density test locations.
- Machinery required to obtain undisturbed clay samples (i.e., with Shelby tubes).
- Replace and recompact clay material removed for testing purposes.

D Measurement
The department will measure Clay Cap by the cubic yard, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0035.0031	Clay Cap	CY

Payment is full compensation for furnishing, placing and compacting the clay cap on the surface of the Excavation, Hauling, and Reuse of Solid Waste Soil stock pile material.

75. HPC Masonry Structures, Item SPV.0035.4000.

This special provision describes specialized material and construction requirements for high-performance concrete used in bridge structures. Conform to standard spec 501, 502 and 509, as modified in this special provision. Conform to standard spec 715 for QMP Concrete Pavement and Structures as modified in this special provision.

MODIFY THE STANDARD SPECIFICATIONS AS FOLLOWS:

501.2.5.4.1 General
Replace the entire text with the following:

(1) Use clean, hard, durable crushed limestone with 100% fractured surfaces and free of an excess of thin or elongated pieces, frozen lumps, vegetation, deleterious substances or adherent coatings considered injurious.

(2) Use virgin aggregates only.

501.2.5.4.2 Deleterious Substances
Replace paragraph one with the following:

(1) The amount of deleterious substances must not exceed the following percentages:

DELETERIOUS SUBSTANCE	PERCENT BY WEIGHT
Shale	1.0
Coal	1.0
Clay lumps	0.3
Soft fragments	5.0
Any combination of above	5.0
Thin or elongated pieces based on a 3:1 ratio	15.0
Materials passing the No. 200 sieve	1.5
Chert[1]	1.0

[1]Material classified lithologically as chert and having a bulk specific gravity (saturated surface-dry basis) of less than 2.45. Determine the percentage of chert by dividing the weight of chert in the sample retained on a 3/8-inch sieve by the weight of the total sample.

501.2.5.4.3 Physical Properties
Replace paragraph one with the following:

(1) The department will ensure that Los Angeles wear testing conforms to AASHTO T 96, soundness testing conforms to AASHTO T 104 using 5 cycles in sodium sulfate solution on aggregate retained on the No. 4 sieve, and freeze-thaw soundness testing conforms to AASHTO T 103. The percent wear must not exceed 30, the weighted soundness loss must not exceed 6 percent, and the weighted freeze-thaw average loss must not exceed 15 percent.

501.3.2.4.3.3 Extended Delivery Time
Delete paragraph one.

501.3.5.1 General
Replace paragraph one with the following:

(1) Use central-mixed concrete as defined in 501.3.5.1(2) for all work under this special provision.

501.3.5.2 Delivery
Replace paragraph three with the following:

(3) Deliver and completely discharge concrete within one hour beginning when adding water to the cement, or when adding cement to the aggregates. A decrease in air temperature below 60° F or the use of department-approved retarders does not increase the discharge time.

501.3.7.1 Slump
Replace the entire text with the following:

(1) Use a 2-inch to 4-inch slump.

(2) Perform the slump tests for concrete according to AASHTO T 119.

501.3.8.2.1 General
Replace the entire text with the following:

(1) The contractor is responsible for the quality of the concrete placed in hot weather. Submit a written temperature control plan at or before the pre-pour meeting. In that plan, outline the actions the contractor will take to control concrete temperature if the concrete temperature at the point of placement exceeds 80° F. Do not place concrete without the engineer's written acceptance of that temperature control plan. Perform the work as outlined in the temperature control plan.

(2) If the concrete temperature at the point of placement exceeds 80° F, do not place concrete for items covered in this special provision.

(3) Notify the engineer whenever conditions exist that might cause the temperature at the point of placement to exceed 80° F. If project information is not available, the contractor should obtain information from similar mixes placed for other nearby work.

(4) Any additive or action taken by the contractor to control the temperature of the concrete to within the limits of this special provision, including but not limited to the addition of ice to the concrete mix, is considered incidental to the work and will not be measured or paid for separately.

501.3.8.2.2 Bridge Decks
Replace the entire text with the following:

(1) Do not place concrete for bridge decks when the ambient air temperature is above 80° F.

(2) For concrete placed in bridge decks, submit a written evaporation control plan at each pre-pour meeting. In that plan, outline the actions the contractor will take to maintain concrete surface evaporation at or below 0.15 pounds per square foot per hour. Do not place concrete for bridge decks without the engineer’s written acceptance of that evaporation control plan. Perform the work as outlined in the evaporation control plan.

(3) If predicting a concrete surface moisture evaporation rate exceeding 0.15 pounds per square foot per hour, do not place concrete for bridge decks.

(4) Provide evaporation rate predictions to the engineer 24 hours prior to each bridge deck pour.

(5) Compute the evaporation rate from the predicted ambient conditions at the time and place of the pour using the nomograph, or computerized equivalent, specified in CMM 5.25, figure 1. Use weather information from the nearest national weather service station. The engineer will use this information to determine if the pour will proceed as scheduled.

(6) At least 8 hours before each pour, the engineer will inform the contractor in writing whether or not to proceed with the pour as scheduled. If the actual computed evaporation rate during the pour exceeds 0.15 pounds per square foot per hour, at the sole discretion of the engineer, the contractor may be allowed to implement immediate corrective action and complete the pour.

502.2.6.2 Burlap
Replace the entire text with the following:

(1) Furnish burlap conforming to AASHTO M 182, class 1, 2, 3 or 4.

502.3.5.4 Superstructures
Delete paragraph six.

502.3.7.8 Floors
Delete paragraphs thirteen, fourteen and fifteen.

Add the following to the end as paragraphs nineteen, twenty, twenty-one, twenty-two, twenty three, and twenty-four.

(19) Do not place bridge deck concrete more than 10 feet ahead of the finishing machine. If there is a delay of more than 10 minutes during the placement of a bridge deck, cover all concrete (unfinished and finished) with wet burlap to protect the concrete from evaporation until placement operations resume.

(20) Hand finishing, except for the edge of deck, must be kept to a minimum. The finishing machine must be equipped with a pan behind the screed. Apply micro texture using a broom or turf drag following the use of a 10-foot straight edge. Only finish by hand as necessary to close up finished concrete. Begin wet curing the deck immediately following the micro texture.

(21) For bridge decks with a design speed of 40 mph or greater, provide longitudinal grooving according to the provision included in this contract.

(22) Place HPC Masonry Structures for bridge decks during nighttime hours. Begin work no earlier than two hours before sunset and end no later than 2 hours after sunrise; unless alternate begin and end times are approved prior to the concrete placement by the engineer. To determine acceptable hours, use the sunset and sunrise times published by the National Weather Service for the proposed date of the night concrete placement or as mutually agreed to by the contractor and the engineer.

(23) Provide lighting as necessary to safely perform the required work and facilitate inspection during nighttime hours. Ensure that lighting does not interfere with or impeded traffic on open roadways and does not cause glare, shine or directly face the eyes of oncoming drivers. After initial setup, drive through and observe the lighted work area from each direction on the main roadway. Adjust lighting alignment if lighting causes glare, shine or directly faces the eyes of oncoming drivers

(24) Lighting for nighttime bridge deck placement is included in the item HPC Masonry Structures and will not measured or paid for separately.

502.3.8.1 General
Replace paragraph one with the following:

(1) Maintain adequate moisture throughout the concrete mass to support hydration for at least 14 days.

502.3.8.2.1 General
Replace the entire text with the following:

(1) Wet-cure the concrete for bridge decks, sidewalks and raised medians for 14 days by use of a soaker hose system, or other engineer-approved methods. Cover the finished surface of bridge decks and overlays with one layer of wetted burlap or wetted cotton mats within 10 minutes after the finishing machine has passed. Apply the burlap/cotton gently so as to minimize marking of the fresh concrete. Keep the first layer of burlap/cotton continuously wet until the bridge deck or overlay is sufficiently hard to apply a second layer of wetted burlap/cotton. Immediately after applying the second layer of burlap/cotton, continue to keep the deck wet until placing and activating the soaker hose system. Throughout the remainder of the curing period, keep the burlap/cotton continuously wet with soaker hoses hooked up to a continuous water source. Inspect the burlap/cotton twice daily to ensure the entire surface is moist. If necessary, alter the soaker hose system as needed to ensure the entire surface is completely covered and stays moist. After 48 hours from the time of completion of the bridge deck or overlay pour, the soaker hose system and burlap/cotton may be covered with polyethylene sheeting. Provide a continuous flow of water through the soaker hose system for the entire curing period.

(2) Do not uncover any portion of the deck at any time for any reason during the first 7 days of the curing period.

(3) Set up and test the fogging system before each bridge deck, raised median and sidewalk pour. The fogging system must remain set up and in operating condition for the duration of the pour.

502.3.8.2.3 Decks
Delete the entire text.

502.3.8.2.4 Parapets
Replace the entire text with the following:

(1) Cure the inside and outside concrete faces and tops of railings or parapets by covering with wetted burlap immediately after form removal and surface finish application. Keep the burlap thoroughly wet for at least 7 days; or by covering for the same period with thoroughly wet polyethylene-coated burlap conforming to standard spec 502.2.6.4

(2) Secure coverings along all edges to prevent moisture loss.

502.3.9.6 Bridge Decks
Replace paragraph two with the following:

(2) Protect the underside of the deck, including the girders, for bridge deck and overlay pours by housing and heating when the national weather service forecast predicts temperatures to fall below 32° F during the cold weather protection period. Maintain a minimum temperature of 40° F in the enclosed area under the deck for the entire 14-day curing period.

502.5.1 General
Replace paragraph one with the following:

(1) The department will pay for measured quantities at the contract unit price and incidentals necessary to complete the work under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0035.4000	HPC Masonry Structures	CY

710.5 Sampling and Testing
Add the following subsection:

710.5.7 Chloride Penetration Resistance

(1) For each new or changed mix design, measure chloride penetration resistance according to AASHTO T 277 (Rapid Chloride Permeability Test) at a frequency of 1 test per 3 months (quarterly) of production.

(2) Permeability samples for AASHTO T 277 testing must be stripped of their molds and wet cured to an age of 7 days in a standard moist room or water tank. After 7 days, submerge the samples in water heated to 100° F until an age of 28 days. Upon completion of the curing process, obtain one sample from each cylinder and test according to AASHTO T 277.

(3) Ensure that the initial accepted mix designs meet the chloride penetration resistance limit of 1500 coulombs based on the AASHTO T 277 Rapid Chloride Permeability test. Chloride resistance testing conducted quarterly using AASHTO T 277 Rapid Chloride Permeability Test during production will not be used for acceptance of previously accepted mixes and concrete masonry mixed and placed according to the contract requirements. For quarterly chloride resistance test results exceeding 1500 coulombs, the department may require adjustment of the concrete mix going forward to improve the chloride penetration resistance.

715.2.3.2 Structures

Replace paragraph one with the following:

(1A) Develop and test each mix to be used for HPC Masonry Structures. Produce a laboratory trial mix for each mix, as well as a trial mix from each plant used to supply the project. Test all mixes at a department-qualified laboratory.

(1B) The laboratory trial mix data must include the results of the following tests:

1. AASHTO T 119 Slump of Hydraulic Cement Concrete.
2. AASHTO T 121 Mass per Cubic Foot, Yield
3. AASHTO T 152 Air Content.
4. AASHTO T 22 Compressive Strength.
5. AASHTO T 277 Rapid Determination of the Chloride Permeability of Concrete, using the modified curing procedure according to standard spec 710.5.7 (2) herein.
6. AASHTO T 309 Temperature.
7. Water Cement Ratio.

(1C) The 28-day compressive strength must be greater than or equal to 4000 psi. The 28-day results of the permeability test must be less than or equal to 1500 coulombs.

Replace paragraph two with the following:

(2) Provide a minimum cementitious content of 470 pounds per cubic yard and a maximum cementitious content of 540 pounds per cubic yard. For all superstructure and substructure concrete, unless the engineer approves otherwise in writing, conform to one of the following:
1. Use class C fly ash or grade 100 or 120 slag as a partial replacement for Portland cement. For binary mixes use 15% to 30% fly ash or 20% to 30% slag. For ternary mixes use 15% to 30% fly ash plus slag in combination. Percentages are stated as percent by weight of the total cementitious material in the mix.
2. Use a type IP or IS blended cement.

715.4 Measurement
Delete the entire text.

715.5.1 General
Delete paragraphs one and two.

Replace paragraph four with the following:

(4) The department will adjust pay for each lot using percent within limits (PWL) of the 28-day sublot average strengths for that lot. The department will measure PWL relative to the lower specification limit of 4000 psi.

715.5.3 Structures
Replace the entire text with the following:

The department will adjust pay for each lot using equation "QMP 2.02" as follows:

PERCENT WITHIN LIMITS (PWL)	PAY ADJUSTMENT[1] (dollars per cubic yard)
≥ 90 to 100	0
≥ 50 to < 90	(7/8 x PWL) – (78.75)
< 50	-35

[1] For lots with less than four sublots, the department will assess a disincentive based on the individual sublot average strengths. The department will reduce pay for sublots with an average strength below 4000 psi by $35 per cubic yard.

76. Detention Basin Clay Lining, Item SPV.0035.8001.

A Description

This special provision describes furnishing and installing clay lining to the interior surfaces of the detention basin.

B Materials

The clay material can be acquired on site or be furnished by the contractor from a borrow site. The contractor shall submit laboratory test results of the clay lining material from onsite or borrow source(s) documenting that the clay meets or exceeds the clay material specifications prior to the start of lining construction and prior to bringing borrow to the site. The laboratory tests shall be conducted on clay material from on site or borrow areas at the frequency listed below and be performed in accordance to ASTM standard methods as listed below. The test results shall be submitted to the engineer for review and approval prior to construction. The following tests are required:

- A minimum of 50 percent by weight which passes the 200 sieve.
- Liquid Limit (LL): 22 percent or greater.
- Plasticity Index (PI): 12 percent or greater.

Clay not meeting these three requirements shall be removed and disposed of by the contractor without additional payment.

In addition to the three above testing requirements, the contractor shall provide additional test results for any clay furnished to be used for informational purposes. These testing results are listed below.

Reference standards are listed as follows:

American Society for Testing and Materials (ASTM):

- **ASTM D698** Test for Moisture-Density Relations of Soils and Soil Aggregate Mixtures Using 5.5 lb Rammer and 12 in. Drop (Standard Proctor).
- **ASTM D2922** Test for Density of Soil In Place by Nuclear Method (Shallow Depth).
- **ASTM D1140** Test Method for Amount of Materials in Soils Finer than the No. 200 Sieve.
- **ASTM D422** Method for Particle-Size Analysis of Soils.
- **ASTM D4318** Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
- **ASTM D2487** Classification of Soils for Engineering Purposes.

Table of Testing for Clay

Test	Number of Required Tests: One Borrow Source Only and Also For Onsite Clay	Number of Required Tests: Multiple Borrow Sources	Minimum Requirement
Grain Size Analysis	3 (Total)	1 test/2,500 cy or less/site[(a)]	≥ 50% by Wt. Passing 200 Sieve
Hydrometer Analysis	3 (Total)	1 test/2,500 cy or less/site[(a)]	Info. Only
Atterberg Limits (ASTM D4318)	3 (Total)	1 test/2,500 cy or less/site[(a)]	LL ≥ 22% PI ≥ 12%
USCS Classification (ASTM D2487)	3 (Total)	1 test/2,500 cy or less/site[(a)]	Info. Only
Standard Proctor Analysis 5-Point Curve (Minimum) (ASTM D698)	2 (Total)	1 test/10,000 cy or less/site[(b)]	Info. Only
Permeability Test (use falling head method)	2 (Total)	1 test/10,000 cy or less/site[(b)]	1 x 10^{-7} cm/sec

[(a)] For each clay borrow site to be used, one test shall be performed and provided to engineer for each 2,500 cubic yards or less of clay to be obtained from each of the borrow sources.

[(b)] For each clay borrow site to be used, one test shall be performed and provided to engineer for each 10,000 cubic yards or less of clay to be obtained from each of the borrow sources.

C Construction

C.1 Clay Lining Placement

C.1.1 Detention Basin Subgrade

The detention basin subgrade shall be compacted to a minimum compaction of 95 percent of Standard Proctor Maximum Density (ASTM D-698) prior to placing any required detention basin lining material.

C.1.2 Erosion Protection

The detention basin lining shall not be placed until after all adjacent site grading has been completed and only after silt fence has been installed completely around the perimeter of the detention basin.

C.1.3 Clay Lining

After the rough grading is complete, the contractor shall undercut, place and compact approved clay material in four 6-inch lifts for a total compacted thickness of two feet, including a height of one foot above the normal detention basin elevation.

Contractor shall notify the engineer at least three days prior to start of placing clay lining.

Lift thickness shall be 6 inches maximum after compaction.

Clay lining shall be a minimum of two feet thick measured perpendicular to the surface.

Compact clay to a minimum of 98% Standard Proctor Maximum Density (ASTM D698) with a sheepsfoot roller or other suitable equipment.

Placement of each lift shall not proceed until all required clay testing and documentation has been completed for the previous lift.

The moisture content of the clay during placement shall be:

- No drier than 1 % below the optimum moisture content as determined by ASTM D698.
- No wetter than 3% above the optimum moisture content as determined by ASTM D698.

Excessively dry or wet clay soil shall be properly moisture-conditioned to within the above range of values.

Provide all equipment necessary to adjust clay to the proper moisture content for compaction.

The maximum permeability of constructed clay lining material and tested under Section B shall be $1x10^{-7}$ cm/sec.

The contractor is responsible for construction of the clay lining per the plans. If the in-place clay lining fails to meet the requirements of this section, the contractor shall be responsible for the following:

- Removing and replacing or reworking any portion of the clay lining not meeting the project specifications until project specifications are met.
- The contractor shall not be compensated for removing, replacing and reworking clay lining not meeting the specification requirements.

C.1.4 Testing of Constructed Soils

As construction of the clay lining proceeds, the department will provide all required on-site quality control testing of installed materials as follows:

- Record thickness of clay lining.
- Density testing (ASTM D2922) on after the clay is placed and compacted. One (1) test per lift (minimum) or one test for every 25,000 sq. ft. of lift constructed, whichever is greater.
- HTCP certified person will perform all necessary sampling, testing, data analysis and documentation during all Pond Liner Clay placement and compaction.
- One Standard Proctor (ATM D698) for each soil type used but no less than one Proctor analysis for each 5,000 cubic yards of clay placed.
- After the lining is placed and compacted, one Shelby tube sample and bulk sample shall be retrieved and analyzed for the following:
- Grain size distribution and hydrometer analysis.
- Moisture content.
- Dry density.
- Atterberg Limits.
- Permeability.

The contractor shall provide the following:

- Access for on-site testing, inspection, and documentation.
- Machinery required to grade/blade density test locations.
- Machinery required to obtain undisturbed clay samples (i.e., with Shelby tubes).
- Replace and recompact clay material removed for testing purposes.

C.1.5 Detention Basin Dewatering

The contractor is responsible for the temporary lowering of the water table to 2 feet below the clay liner below the detention basin bottom during construction and testing of the detention basin as described in bid item Dewatering for Detention Basin Construction.

The pond is a wet pond.

D Measurement

The department will not measure Detention Basin Clay Lining. The department will use pay plan quantity according to the Pay Plan Quantity article of these special provisions.

E Payment

The department will pay for plan quantities according to the Pay Plan Quantity article, at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0035.8001	Detention Basin Clay Lining	CY

Payment is full compensation for furnishing, placing and compacting the detention basin clay lining.

77. Lane Rental Assessment, Item SPV.0055.0010.

A General

This contract includes a lane rental charge procedure under which a rental charge is assessed for each freeway shoulder closure, each freeway lane closure, each service ramp closure, each system ramp closure, and each full closure of a directional freeway roadway from the time of notice to proceed until the project is complete. If a lane is obstructed at any time due to operations, it is considered a closure. The purpose of lane rental is to discourage unnecessary short term closures, especially during time periods outside night time hours.

A.1 Lane Rental Assessment Table

The hourly rental rate will be assessed for each shoulder closure, each freeway lane closure, each service ramp closure, each system ramp closure, and each full closure of a freeway roadway as follows:

Lane Rental Assessment Table								
Freeway Closure Type	Peak Hours		Weekday Off-Peak and Weekend Peak		Weekend Off-Peak Hours		Night Time Hours	
	Hourly Rental	Closure Hour Credits	Hourly Rental	Closure Hour Credits	Hourly Rental	Closure Hour Credits	Hourly Rental	Closure Hour Credits
Shoulder when at least 8ft shoulder is reduced to less than 8 ft.	$2,000	0	$400	0	$200	100	$20	160
Single Lane when 2 or more lanes next to closure are open to traffic	$20,000	0	$4,000	0	$2,000	80	$200	200

Lane Rental Assessment Table								
Freeway Closure Type	Peak Hours		Weekday Off-Peak and Weekend Peak		Weekend Off-Peak Hours		Night Time Hours	
	Hourly Rental	Closure Hour Credits	Hourly Rental	Closure Hour Credits	Hourly Rental	Closure Hour Credits	Hourly Rental	Closure Hour Credits
Single Lane when only 1 lane next to closure is open to traffic	$40,000	0	$8,000	0	$4,000	0	$400	0
2 Adjacent Lanes when 1 or 2 basic lanes next to closure are open to traffic	$40,000	0	$8,000	0	$4,000	40	$400	80
Service Ramp	$10,000	0	$2,000	0	$1,000	40	$100	120
System Ramp	$40,000	0	$8,000	0	$4,000	0	$400	0
Full Roadway Closure	$80,000	0	$16,000	0	$8,000	0	$800	80

The monetary amount represents the average hourly cost of the interference and inconvenience to the road user for each closure. Lane rental in excess of the maximum credited hours specified will be assessed. The assessment will be the total number of hours that each shoulder, lane, roadway, or ramp closure exceeds the "closure hour credits", multiplied by the "hourly rental" rate as defined in the Lane Rental Assessment Table.

The rental assessment will be 15-minute increments for closure time periods equal to or less than 60 minutes in length. All shoulder, lane, roadway, or ramp closure event durations will be rounded up or down to the nearest quarter hour for the purposes of this computation except in the event where failing to open freeway shoulders or lanes

of traffic and/or ramps to traffic by the specified times, as noted in the article Prosecution and Progress under Freeway Work Restrictions. Deductions will be made from the monies based on the hourly rental rate for the closure type and hourly definition that the non-compliant closure occurs. The deduction will be made based on the applicable rate for any and all closures whether work is being performed or not. The engineer, or designated representative, will be the sole authority in determining time period length for the lane rental charge.

Lane rental will not be assessed for closures noted in the plans under the title "Traffic Control/Construction Stage XX". Additional lane or ramp closures shown beyond those in the plans under the title "Traffic Control/Construction Stage XX" will be assessed if the closures exceed the credited hours.

Lane rental will not be assessed for ramp closures noted in the plans under the title "Traffic Control/Construction Stage XX" if the plans and construction operations already include such closures. Additional ramp closures shown beyond those in the plans under the title "Traffic Control/Construction Stage XX" will be assessed if the closures exceed the credited hours.

Lane rental will not be assessed for closure of auxiliary lanes noted in the plans under the title "Traffic Control/Construction Stage XX" if the plans and construction operations already include such closures. However, when closure of an auxiliary lane requires the closure of a ramp, then lane rental will be assessed for each service and/or system ramp closure. Additional ramp closures shown beyond those in the plans under the title "Traffic Control/Construction Stage XX" will be assessed if the closures exceed the credited hours.

Lane rental for shoulder shall only apply to shoulders along the traveled way of IH 94/USH 45/northbound and southbound. A shoulder is considered closed when a paved shoulder area with 8 feet or more of width is reduced to a dimension less than 8-feet wide by contractor’s equipment or traffic control devices, excluding spot locations of advance traffic control devices "in use" for other lane or ramp closures. Lane rental for shoulder shall not apply to shoulders along ramps or along closed traffic lane(s).

Lane rental will not be assessed for maintenance of temporary surfaces, if in the opinion of the engineer, maintenance began as expediently as possible of the deteriorated pavement or shoulder, and the lack of maintenance would cause safety concerns to the traveling public.

Lane rental will not be assessed for closures due to crashes, accidents or emergencies.

A1.1 Lane Rental Assessment and Liquidated Damages

On those days when charged with the liquidated damage fee; and a shoulder, ramp or lane closure is in effect to facilitate construction operations that are exceeding credited hours; both the lane rental assessment and the liquidated damages fee will be charged

B (Vacant)

C (Vacant)

D Measurement

The department will assess Lane Rental Assessment by the dollar. The charge will be the total dollar amount of each freeway closure type category where the total number of hours that each shoulder, lane, ramp, or roadway closure exceeds the project maximum number of "closure hour credits," as defined in the Lane Rental Assessment Table, multiplied by the "hourly rental" as defined in the Lane Rental Assessment Table. The Lane Rental Assessment total will not be reduced or offset with freeway closure type categories where the total closure hours were less than "closure hour credits."

Lane Rental Assessment will be in effect from the time of notice to proceed until such time that the project is complete.

E Payment

The department will assess lane rental assessment, as described above under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0055.0011	Lane Rental Assessment	DOL

78. Pavement Marking Grooved Preformed Thermoplastic Arrows Type 1, Item SPV.0060.0010; Pavement Marking Grooved Preformed Thermoplastic Arrows Type 2, Item SPV.0060.0011;Pavement Marking Grooved Preformed Thermoplastic Words, Item SPV.0060.0012.

A Description

This special provision describes grooving the pavement surface, and furnishing and installing preformed thermoplastic pavement marking as shown on the plans, in accordance to standard spec 647, and as hereinafter provided.

B Materials

Furnish preformed thermoplastic pavement marking and sealant material, if required, from the department's approved products list.

C Construction

C.1 General

For quality assurance, provide the engineer and the region's Marking Section evidence of manufacturer training in the proper placement and installation of preformed thermoplastic pavement marking.

Plane the grooved lines in accordance to the plan details. Use grooving equipment with a free-floating, independent cutting or grinding head. Plane a minimum number of passes to create a smooth groove.

C.2 Groove Depth
Cut the groove to a depth of 120 mils ±10 mils deeper than the thermoplastic thickness, from the pavement surface or, if tined, from the high point of the tined surface. Measure depth using a straightedge placed perpendicular to the groove. The department may periodically check groove depths.

C.3 Groove Width – Linear Markings
Cut the groove 1-inch wider than the width of the thermoplastic.

C.4 Groove Position
Position the groove edge in accordance to the plan details.

C.4.1 Linear Marking
Groove at a minimum of 4-inches, but not greater than, 12-inches from both ends of the line segment. Achieve straight alignment with the grooving equipment.

C.4.2 Special Marking
Groove a box around the special marking up to 4 inches from the perimeter of the special marking.

C.5 Groove Cleaning
C.5.1 Concrete
Cooling the cutting head with water may be necessary for some applications and equipment. If cooling water is necessary, flush the groove immediately with water after cutting to remove any build-up of cement dust and water slurry. If this is not done, the slurry may harden in the groove.

If water is used in the grooving process, allow the groove to dry a minimum of 24 hours after groove cleaning, after removal of excess water, and prior to pavement marking application. Clean and dry the groove for proper application of the sealant, and placement of the pavement marking. Use a high-pressure air blower with at least 185 ft^3/min air flow and 90 psi air pressure to clean the groove; use of the air blower does not decrease the amount of time required for the groove to dry.

C.5.2 New Asphalt
Groove pavement 10 or more days after paving. Use a high-pressure air blower with at least 185 ft^3/min air flow and 90 psi air pressure to clean the groove.

C.5.3 Existing Asphalt
Check for structural integrity in supporting grooving operations. If the structural integrity of the asphalt pavement is inadequate to support grooving operations, immediately notify the engineer.

C.5.4 Asphalt
Use a high-pressure air blower with at least 185 ft^3/min air flow and 90 psi air pressure to clean the groove.

C.6 Preformed Thermoplastic Application
Preheat the surface if necessary based on manufacturer's recommendation.

Application of the preformed thermoplastic in the groove without sealant will be as follows:

- May 1 to September 30, both dates inclusive – the Southeast Region and the ozone non-attainment or maintenance Northeast Region counties of Sheboygan, Manitowoc, Kewaunee, and Door.
- June 1 to August 31 – the Southwest Region, and the Northeast, North Central, and Northwest Regions except for the ozone non-attainment or maintenance Northeast Region counties of Sheboygan, Manitowoc, Kewaunee, and Door.

Application of the preformed thermoplastic in the groove with sealant materials will be as follows:

- October 1 to April 30, both dates inclusive – the Southeast Region and the ozone non-attainment or maintenance Northeast Region counties of Sheboygan, Manitowoc, Kewaunee, and Door.
- September 1 to May 31, both dates inclusive – the Southwest Region and the Northeast, North Central, and Northwest Regions, except for the ozone non-attainment or maintenance Northeast Region counties of Sheboygan, Manitowoc, Kewaunee, and Door.

The sealant must be wet.

D Measurement
The department will measure Pavement Marking Grooved Preformed Thermoplastic (Type) by each individual unit, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0010	Pavement Marking Grooved Preformed Thermoplastic Arrows Type 1	Each
SPV.0060.0011	Pavement Marking Grooved Preformed Thermoplastic Arrows Type 2	Each
SPV.0060.0012	Pavement Marking Grooved Preformed Thermoplastic Words	Each

Payment is full compensation for cleaning and preparing the pavement surface, and for furnishing and installing the material.

79. Mobilizations Emergency Pavement Repair, Item SPV.0060.0014.

A Description
Furnish and mobilize personnel, equipment, traffic control, and materials to the project site to repair the existing pavement or Asphaltic Surface Temporary on an emergency basis as the engineer directs.

B (Vacant)

C Construction
Mobilize with sufficient personnel, equipment, traffic control, materials and incidentals on the jobsite within four hours of the engineer's written order to repair the existing pavement on an emergency basis.

An emergency is a sudden occurrence of a serious and urgent nature, beyond normal maintenance of the existing pavement or the Asphaltic Surface Temporary. Under this definition, an emergency mobilization requires immediate action to move necessary personnel, equipment, and materials to the emergency site followed by immediate repairs of the existing pavement or the Asphaltic Surface Temporary.

D Measurement
The department will measure Mobilizations Emergency Pavement Repair as each individual mobilization acceptably completed. The department will not include delivering and installing pavement repair or maintenance materials provided for in specific contract bid items. All traffic control items used for each mobilization will be considered incidental to the mobilization.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0014	Mobilizations Emergency Pavement Repair	Each

Payment is full compensation for the staged moving of personnel, moving equipment, setting up and removing traffic control, traffic control materials, and moving materials. The department will pay separately for delivery and installation of pavement repair materials under the other bid items in this contract. The department will not pay separately for traffic control items and materials even though they may be included in other bid items in this contract and will consider them incidental to each mobilization.

80. Traffic Control Close-Open Freeway Entrance Ramp, Item SPV.0060.0015.

A Description
This item shall consist of furnishing the labor and equipment required for closing and subsequently opening a freeway entrance ramp in accordance to standard spec 643, the

plans, and as directed by the engineer. Drums, barricades and signs may remain along the roadway when the exit ramp is open to traffic. Signs shall not be visible to traffic when the ramp is open. Drums, barricades and signs will be paid for separately under the various traffic control items.

B (Vacant)

C (Vacant)

D Measurement
The department will measure Traffic Control Close-Open Freeway Entrance Ramp by each individual traffic control, close-open freeway ramp, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0015	Traffic Control Close-Open Freeway Entrance Ramp	Each

Payment is full compensation for closing and subsequently opening a freeway entrance ramp; and for furnishing all labor, equipment, tools, and incidentals necessary to complete the work in accordance to the contract.

81. Traffic Control Interim Freeway Lane Closure, Item SPV.0060.0016.

A Description
This item shall consist of adjusting existing traffic control items that have previously been placed on the freeway for a lane closure, intended lane closure or are in position for staged construction as shown on the plans into position for an additional lane or two lane closures, and for readjusting the traffic control items to their original state or position upon removal of the additional lane or two lane closure within a 24 hour period. All work shall be in accordance to standard spec 643, the plans, and as directed by the engineer.

B (Vacant)

C (Vacant)

D Measurement
The department will measure Traffic Control Interim Freeway Lane Closure as each individual freeway lane or two-lane closure is setup and subsequently removed per direction of traffic within a 24-hour time period, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0016	Traffic Control Interim Freeway Lane Closure	Each

Payment is full compensation for setup and subsequent removal per direction of traffic within a 24-hour time period of a freeway lane or two-lane closure; and for furnishing all labor, equipment, tools, and incidentals necessary to complete the work

82. Traffic Control Covering Signs Type I Left in Place, Item SPV.0060.0017.

A Description

This special provision describes furnishing, installing, and maintaining Traffic Control Covering Signs Type I Left In Place as shown on the plans

Traffic Control Covering Signs Type I Left In Place become property of the department after final acceptance by the engineer.

B Material

Use materials in accordance to the pertinent provisions of standard spec 643.2.9 and as hereinafter provided. Sign covers shall be covered with green high intensity sheeting.

C Construction

Perform work in accordance to the pertinent provisions of standard spec 643.3, as shown on the plans, and as hereinafter provided.

D Measurement

The department will measure Traffic Control Covering Signs Type I Left in Place by each individual sign cover, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0017	Traffic Control Covering Signs Type I Left in Place	Each

Payment is full compensation for furnishing, installing, and maintaining the Traffic Control Covering Signs Type I.

83. Traffic Control Covering Signs Type II Left in Place, Item SPV.0060.0018.

A Description

This special provision describes furnishing, installing, and maintaining Traffic Control Covering Signs Type II Left In Place as shown on the plans

Traffic Control Covering Signs Type II Left In Place become property of the department after final acceptance by the engineer.

B Material
Use materials in accordance to the pertinent provisions of standard spec 643.2.9 and as hereinafter provided. Sign covers shall be covered with green high intensity sheeting.

C Construction
Perform work in accordance to the pertinent provisions of standard spec 643.3, as shown on the plans, and as hereinafter provided.

D Measurement
The department will measure Traffic Control Covering Signs Type II Left in Place by each individual sign cover, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0018	Traffic Control Covering Signs Type II Left in Place	Each

Payment is full compensation for furnishing, installing, and maintaining the Traffic Control Covering Signs Type II.

84. Exposing Existing Utility, Item SPV.0060.0020.

A Description
This work includes exposing existing utilities which are in direct conflict with proposed facilities. The location of existing utilities not in direct conflict with proposed construction is not included and shall be addressed using standard utility location procedures. The work includes exposing existing utilities under paved and unpaved surfaces, and providing both lateral and depth measurements for use in determining potential utility conflict solutions.

B Materials
B.1 Granular Backfill
Furnish granular backfill that conforms to standard spec 209.

B.2 Slurry Backfill
Use aggregates that conform to standard spec 501 for grade A concrete. Weigh aggregates at a batch plant suitable for batching concrete masonry. Mix and deliver to the project site using a truck mixer. Add enough water to enable the mixture to flow readily.

C Construction
C.1 General
Submit all requests for exposing existing utilities in writing to the engineer for approval prior to performing the work. Coordinate utility exposures with the engineer and notify the utility owner or their agents of this work two working days in advance so that they may be present when the work commences.

C.2 Excavation

Remove all paved and unpaved surfaces at locations where the existing utility is being exposed. Saw or remove concrete and asphaltic pavements to the nearest joint. Remove all pavement surfaces in such a way that all existing edges consist of a true line having a perpendicular edge with no unraveling. Maintain drainage at all times in accordance to standard spec 205.3.3. Take precautions, including temporary shoring, in order to prevent any undermining of the existing roadway. Perform work in accordance to all applicable laws, ordinances, rules, regulations, and OSHA standards.

Expose all utility locations within a given location to a minimum depth of 18-inches below the bottom of each utility. Excavate in a manner that protects the integrity of the utilities and prevents any damage to wrappings or protective coatings such as by any mechanical method or hand digging. Notify the utility owner promptly if damage or interruption of service occurs. Repair all damage caused to such utilities resulting from negligence or carelessness on the part of the contractor's operation at contractor expense.

Take all lateral and depth measurements in US feet and tenths thereof. Identify horizontal locations of each exposed utility with a coordinate northing and easting referenced to the Wisconsin County Coordinate System (WCCS), Milwaukee County, NAD 83 (2007). Provide vertical elevations for each exposed utility and reference to NAVD 88 (2007).

The utility location shall remain exposed and available for visual inspection until the completion of all work in a given location. If the utility shall remain exposed overnight or for prolonged periods of time, protect the location with traffic-rated steel plating, safety barriers, and all necessary traffic control devices that may be required under applicable standards or as directed by the engineer.

C.3 Backfilling

Upon completion of the utility exposure, restore the location in kind to its original condition. Use granular backfill, conforming to section 209 of the standard specifications, to backfill the exposed utility locations to the subgrade elevation except for areas located within local streets. All granular material placed to an elevation of 18-inches above each exposed utility shall consist substantially of sand with all particles retained on a one-inch (25.0 mm) sieve removed. The remaining granular material shall conform to the specifications for backfill for trench excavation. When exposed utility locations fall within local streets or city right-of-way, use slurry backfill to fill the entire location to the subgrade elevation.

Restore concrete pavement and concrete base course to the depth found in the existing roadway. Replace all locations that fall within live lanes of any roadway or pedestrian traffic with a high early-strength concrete pavement mix design having a depth equivalent to the existing pavement structure unless directed otherwise by the engineer. Locations that are closed to through traffic may use an approved concrete pavement mix conforming to standard spec 501. If directed by the engineer, tie concrete pavement and/or dowel it to the existing pavement according to the standard detail drawing for concrete pavement. All locations requiring asphaltic pavement shall consist of HMA

Pavement Type E-3 unless otherwise directed by the engineer. Place the HMA pavement in lifts to a depth as directed by the engineer. Apply tack coat to composite pavement structures and between lifts.

Place base aggregate dense between the subgrade surface and the bottom of the pavement. In grassy areas, place 4-inches of topsoil, sod or seed and mulch, and fertilizer. Alternate restoration methods may be used upon written approval from the engineer.

C.4 Documentation
Provide documentation to the engineer and include the coordinates, elevations, and sketches of the utility locations tied to known features in the plans. Each utility shall be referenced to a proposed alignment with a station and offset. The size and/or diameter, composition, and a description of each utility shall be documented and the location of the elevation with respect to each utility noted. Supply digital photographs of the uncovered utility to the engineer in .jpeg format for future reference.

D Measurement
The department will measure Exposing Existing Utility as a unit for each location, acceptably completed. A location may have multiple utilities located within the same exposure area. An exposure area will include all utilities within 6 lateral feet of each other and payment will only be made for one unit regardless of the number of utilities exposed. If the distance from the existing ground elevation, located above the existing utility, to a point 18 inches below the exposed utility is between 0 and 6 feet, the department will measure each location as a single unit of work. If the distance from the existing ground elevation, located above the existing utility, to a point 18 inches below the exposed utility is greater than 6 feet and less than 12 feet, the department will pay for the item as two units of work. Exposures in depth greater than 12 feet are not covered under this item.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0020	Exposing Existing Utility	Each

Payment is full compensation for sawing all pavement; for removing all pavement; for furnishing all excavation; for disposing of all materials; for locating all utilities within each respective location; for providing documentation and photographs of utility locations to the engineer; for furnishing all surveying associated with exposing existing utilities; for furnishing all maintenance of the location during construction; for furnishing all traffic control, safety barriers, and steel plating required; for furnishing and placing granular backfill and slurry backfill; and for temporary shoring. All finishing items including, but not limited to, base aggregate dense, concrete pavement, HMA pavement, curb and gutter, and sidewalk located above the subgrade elevation will be paid for using other contract items.

85. Removing Gate, Item SPV.0060.0021.

A Description
This special provision describes removing existing gate and its foundations concrete bases, and posts as shown on the plans and in accordance to the pertinent provisions of standard spec 204 and as hereinafter provided.

B (Vacant)

C Construction
At least five working days prior to the start of removing the gate, posts, and foundations, contact Kevin Haley of Milwaukee County Parks, (414)-257-6242, to arrange the pickup of salvaged gate and materials. Remove all materials below existing ground to an elevation of two feet below existing subgrade, or as specified by the engineer. Salvage gate, posts, and all hardware requested by the property owner. Dispose of all removed material at an offsite location.

Carefully remove gate, posts, and gate foundations. Avoid damaging salvaged materials and any utilities during construction operations. Do not use equipment or devices that might damage facilities. Complete all necessary operations to remove the gate foundations. Place salvaged materials in neat piles outside the construction limits but within right-of-way at locations approved by the engineer. Backfill all trenches, holes, and pits not occupied by the new pavement and base course with suitable fill material conforming to standard spec 209. Arrange with the property owner to pick up salvaged gate and materials within five business days.

D Measurement
The department will measure Removing Gate by each individual removed gate unit, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0021	Removing Gate	Each

Payment is full compensation for breaking down and removing gate and foundations as outlined in this specification; for removing gate posts, for contacting the property owner; for furnishing all excavating; for placing and compacting backfill material; for furnishing all required salvaging; for disposing of all materials not required for salvaging that were encountered during removing the gate foundations; and for repairing all damage.

86. Straw Bales SPV.0060.0022.

A Description
This work consists of installing straw over tree planting locations, as shown in the plans, to protect the ground from freezing. Work shall not start until approved by the engineer.

B Materials
Straw Bales shall be dry and in unbroken bales when delivered to site.

C Construction
Straw Bales may be loosely divided into small segments when placed over planting areas. Straw shall be placed 18 inches deep, covering an area that is 1 foot larger than the planting hole (on all sides) required for the specified tree as shown in the Plant Data Chart.

Excess material shall be removed and disposed of after placement and after planting is complete.

D Measurement
The department will measure Straw Bales by each individual unit, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0022	Straw Bales	Each

Payment is full compensation for providing and installing Straw Bales, and disposing of surplus materials.

87. Traffic Control Drums Left In Place, Item SPV.0060.0023.

A Description
This special provision describes furnishing, installing, and maintaining Traffic Control Drums Left In Place as shown on the plans.

Traffic Control Drums Left In Place become property of the department after final acceptance by the engineer.

B Materials
This work shall be in accordance to the pertinent provisions of standard spec 643.2.3 and as hereinafter provided.

C Construction
This work shall be in accordance to the pertinent provisions of standard spec 643.3, as shown on the plans, and as hereinafter provided.

D Measurement
The department will measure Traffic Control Drums Left In Place as each drum left in place, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0023	Traffic Control Drums Left In Place	Each

Payment is full compensation for furnishing, installing, and maintaining the Traffic Control Drums.

88. Removing Wrought Iron Gate, Item SPV.0060.0024.

A Description
This special provision describes removing existing wrought iron gate and its foundations, concrete bases, brick posts, electrical control box and it's foundation, and key entry post as shown on the plans and in accordance to the pertinent provisions of standard spec 204 and as hereinafter provided.

B (Vacant)

C Construction
Remove all materials below existing ground to an elevation of two feet below existing subgrade, or as specified by the engineer. Dispose of all removed material at an offsite location.

Carefully remove wrought iron gate, disconnect power and remove electrical control box and it's foundation, remove brick posts, key entry post, and gate foundations. Avoid damaging any utilities during construction operations. Complete all necessary operations to remove the gate foundations. Backfill all trenches, holes, and pits with suitable fill material conforming to standard spec 209.

D Measurement
The department will measure Removing Wrought Iron Gate by each individual removed unit, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0024	Removing Wrought Iron Gate	Each

Payment is full compensation for breaking down and removing wrought iron gate and foundations as outlined in this specification; for removing brick posts, for disconnecting power and removing electrical control box, for removing key entry post; for furnishing all excavating; for placing and compacting backfill material; for disposing of all materials; and for repairing all damage.

89. Lamp Disposal High Intensity Discharge, Item SPV.0060.1010.

A Description

This special provision describes the packaging and delivering of high intensity discharge (mercury vapor, metal halide, and high-pressure sodium) lamps removed under this contract to the department for disposal as hazardous materials.

B Materials

Lamps turned in to the department will be considered the property of the department for proper future disposal, and the contractor will have no further obligation for their disposal.

C Construction

Pack intact lamps in the packaging of the new lamps used to replace them, or packaging affording the equivalent protection. Place in full, stackable cartons with the name of the contractor written on each carton. Segregate the lamps by type and wattage. Label each carton by the type and wattage contained (do not mix) and the quantity.

Pack broken lamps into thick plastic bags and place inside sturdy cardboard boxes or the equivalent. Mark the outer packaging with the term "broken lamps". Deliver all broken lamps to the department.

The department will not accept lamps improperly packaged or packed in metal containers. The department will reject any lamps not removed as part of this contract as shown on the plans.

Pile cartons no more than two high if palletized and secure them to prevent shifting or falling of the loads.

Deliver the lamps to the department at the South 60th Street office in West Allis. Consolidate all deliveries into a truckload or more, except when all the lamps removed under a contract measure less than a truckload, deliver as one load at one time. Contact Mike Prebish at (414) 266-1170, Monday through Thursday from 8:00 AM to 4:00 PM to set up an appointment for delivery.

D Measurement

The department will measure Lamp Disposal High Intensity Discharge as each individual unit delivered to the department, acceptably completed. The department will not measure broken lamps that exceed a total of ten percent of all lamps to be delivered.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.1010	Lamp Disposal High Intensity Discharge.	Each

Payment is full compensation for handling, packaging, labeling and delivering the lamps.

Payment will be in addition to payment for the work under which the lamps are removed from service.

90. Salvaging Light Poles Luminaires and Arms, Item SPV.0060.1020.

A Description

The work under this item shall consist of removing lighting pole, arm and luminaires from the locations shown in the plans, and reinstalling pole at a new location as shown in the plans, in accordance to the applicable provisions of standard spec 204, 655 and 659 or delivering the units to a specific location.

B (Vacant)

C Construction

Inspect the pole prior to removing from the existing base. Inform the engineer of any items of concern or potential problems that may interfere with the reuse of the pole, arm or luminaire. Minimize the time between removal from the existing base and reinstallation on the new base. Bases will be paid as a separate item and are not included herein.

Coordinate power to poles WQLC-1 and WLC-2 with Wisconsin Lutheran College.

D Measurement

The department will measure Salvaging Light Poles Luminaires and Arms by each individual salvaged light pole, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.1020	Salvaging Light Poles Luminaires and Arms	Each

Payment is full compensation for furnishing all the work required under this bid item.

91. Salvaging Luminaires - Wauwatosa, Item SPV.0060.1023.

A Description

The work under this item consists of removing existing lighting units as shown on the plans. The luminaire shall be turned over and delivered to the City of Wauwatosa. Coordinate turning over the luminaires with Mr. Joe Kroll, (414) 479-8934. Units shall be uninstalled, handled, packaged and delivered in a manor that does not damage the luminaire. Removal of pole, luminaire arms, transformer bases (if present) and concrete base (if not direct embedment) will be paid under separate bid items SPV.0060.1031/ SPV.0060.1032 and 204.0195.

B (Vacant)

C Construction
Luminaires shall be returned to the City of Wauwatosa. Dispose of all additional materials off site.

D Measurement
The department will measure Salvaging Luminaires - Wauwatosa as each individual salvaged unit, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.1023	Salvaging Luminaires - Wauwatosa	Each

Payment is full compensation for furnishing all work, salvaging, delivery, and disposal of material.

92. Salvaging Light Poles, Arms and Luminaires - Milwaukee County, Item SPV.0060.1024.

A Description
The work under this item consists of removing existing lighting units as shown on the plans. Removal of the concrete pole base will also be paid under a separate bid item. The pole and luminaire shall be turned over and delivered to the Milwaukee County DPW, Electrical Department at 10310 W. Watertown Plank Road, Wauwatosa. Coordinate turning over the light poles, arms and luminaires including lamps with Mr. John Bieganski, (414) 257-7072. The lighting units shall be uninstalled and disabled. The luminaire and lamp shall be handled, packaged and delivered in a manner that they do not damage both.

B (Vacant)

C Construction
Lamps shall be turned in to the department under a separate item, Lamp Disposal High Intensity Discharge, SPV.0060.1010. Concrete pole bases will be paid under Bid Item Remove Concrete Bases, 204.0195. Poles, arms and luminaires shall be returned to the Milwaukee County Ground. Dispose of all additional materials off site.

D Measurement
The department will measure Salvaging Light Poles, Arms and Luminaires – Milwaukee County as each individual salvaged unit, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.1024	Salvaging Light Poles, Arms and Luminaires – Milwaukee County	Each

Payment is full compensation for furnishing all work, salvaging, delivery, and disposal of material.

93. Removing Lighting Unit, Item SPV.0060.1030.

A Description

The work under this item consists of removing existing lighting units as shown on the plans. Removal of pole luminaire arms, transformer bases and luminaires shall be included as part of the work. Removing concrete bases will be measured and paid under a separate bid item.

B (Vacant)

C Construction

Dispose of all materials off site. Exception: Lamps shall be turned in to the department under a separate item, Lamp Disposal High Intensity Discharge, SPV.0060.1010.

D Measurement

The department will measure Removing Lighting Unit as each individual unit, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.1030	Removing Lighting Unit	Each

Payment is full compensation for furnishing all work and disposal of material.

94. Removing Aluminum Light Poles and Arms, Item SPV.0060.1031.

A Description

The work under this item shall consist of removing aluminum light poles and arms as shown on the plans. The concrete base removal will be under a separate bid item. The luminaires shall be removed and turned over to the City of Wauwatosa. The salvaging of the luminaires will be paid under a separate bid item Salvaging Luminaires - Wauwatosa, SPV.0060.1023.

B (Vacant)

C Construction
Dispose of all materials offsite. Do not disable the lighting unit until the temporary lighting system over the area is operational.

D Measurement
The department will measure Removing Aluminum Light Poles and Arms as each individual removed pole and associated arms, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.1031	Removing Aluminum Light Poles and Arms	Each

Payment is full compensation for furnishing all work and disposal of material.

95. Removing Concrete Light Poles and Arms, Item SPV.0060.1032.

A Description
The work under this item shall consist of removal and disposal of concrete light poles and arms as shown on the plans. The luminaires shall be removed and turned over to the City of Wauwatosa and will be paid under a separate bid item Salvaging Luminaires - Wauwatosa, SPV.0060.1023.

B (Vacant)

C Construction
Dispose of all materials offsite. Backfill the resulting hole from the pole extraction with a suitable material for the location. Do not disable the lighting unit until the temporary lighting system over the area is operational.

D Measurement
The department will measure Removing Concrete Light Poles and Arms as each individual pole and associated arms, acceptably removed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.1032	Removing Concrete Light Poles and Arms	Each

Payment is full compensation for furnishing all work and disposal of material; and for labor, tools, equipment and incidentals necessary to complete the work.

96. Luminaire LED, Item SPV.0060.1060.

A Description

This special provision describes furnishing and installing LED luminaires at the locations shown in the plan.

B Materials

B.1 Material Qualifications

Furnish a complete list of documentation in accordance to standard spec 651.2 and the following requirements. Be prepared to provide the following materials and/or data to the engineer and the City of Wauwatosa Public Works, Joe Kroll, 11100 W. Walnut Road, Wauwatosa, WI, (414) 471-8422, jkroll@wauwatosa.net, for review and approval:

One example luminaire matching what is proposed for use on the project. Example luminaire shall be available for evaluation for up to two weeks time. Furnish the following list of specific documentation detailing the characteristics of the LED luminaire:

- Fixture IES files (.ies format) for illumination modeling.
- Cut sheets, warranty information and parts list for all equipment.
- Luminaire heat dissipation techniques.
- Energy usage information.
- Color spectrum with HID lamp comparison.
- Optical design features.
- Two references from municipalities currently using the same luminaires.

Do not order materials until the engineer approves the list.

B.2 Luminaire

Furnish LED luminaires with a slim, low profile design that minimizes wind loading. Luminaires shall be constructed of rugged cast and extruded aluminum with integral, weather-tight LED driver components with high performance aluminum heat-sinks. Each luminaire shall use a terminal block for power input suitable for #2 to #14 AWG wire. Luminaire shall be IESNA Type III Medium distribution without backlight control. The luminaire shall designed to mount on a 2" IP (2.375" O.D.) horizontal tenon and shall be adjustable +/- 5 degrees to allow for leveling. Luminaire shall include a leveling bubble visible from the underside of the unit.

B.2.1 Electronic Components

Luminaire shall accommodate varied lighting output from high brightness, 4300K (+/- 500K per full unit), minimum 70 CRI, long life LED sources. Drivers shall operate across 120-277V, 50/60 Hertz as standard. LED drivers shall have a power factor greater than 90% and THD less than 20% of full load. All luminaires shall come equipped with an integral 9kV surge suppression protection standard and a quick disconnect harness suitable for mate and break under load provided on power feed to driver for ease of maintenance.

B.2.2 Optical / Illumination Performance
Luminaire shall conform to the following:

- Luminaire tested and certified by an independent test laboratory to meet the photometric performance criteria established by IESNA LM-79.
- Luminaire shall be IESNA Type II or III Medium distribution.
- Luminaire shall deliver approximately 10,000 lumens and be rated to consume no more than 175 watts (+/- 15%) while operating for a minimum of 100,000 hours (+/- 10%).
- Nominal drive current to be set at 530 Ma. Drive current shall be field adjustable.

B.2.3 Finish
The luminaire fixture finish shall feature an epoxy primer with an ultra-durable silver powder topcoat, providing resistance to corrosion, ultraviolet degradation and abrasion. Alternative equivalent finishes shall be approved by the engineer.

B.2.4 Ratings / Certifications
Luminaires shall be rated and/or certified as follows:

- U.L. listed for wet locations.
- RoHS compliant for lead and mercury standards.
- IP-65 minimum weather fastness rating.
- IDA dark sky full cutoff compliant.

Acceptable LED luminaires are:

- BetaLED Model: STR-LWY-2M-43-07-D-UL-525-43K.
- Phillips Model: RVM-160W96LED4k-LE2.
- American Electric Model: ATB1-60LED-E53-MVOLT-R2.

C Construction
Install LED Luminaire in accordance to the pertinent provisions of standard spec 659 and as the manufacturer directs.

D Measurement
The department will measure Luminaire LED as each individual LED luminaire, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.1060	Luminaire LED	Each

Payment is full compensation for furnishing all materials; installing a complete luminaire; and for furnishing all documentation.

97. Distribution Center Lighting - Wauwatosa, Item SPV.0060.1120.

A Description

This special provision describes furnishing and installing a street lighting distribution center located as shown. The distribution center is to match the City of Wauwatosa standard distribution cabinets.

Work under this item consists of furnishing and installing 240/480 volt, 100 amp electrical service enclosure for power distribution. The distribution centers shall include but not limited to a NEMA 3R aluminum cabinet, panelboard, circuit breakers, lighting contactor with photoelectric control, wiring, all equipment and materials as shown in the plans.

The meter pedestal and concrete base will be paid under a separate bid items.

B Materials

The cabinet with all of its electrical components, wiring and parts shall be listed and labeled by Underwriters Laboratories (UL) or other Nationally Recognized Testing Laboratory as a complete assembled unit.

All materials furnished by the contractor for highway lighting installation under this contract are subject to approval by the engineer.

B.1 Enclosure

The enclosure shall be manufactured by Bison Pro Fab (800) 825-3805, APX Enclosures (717) 328-9399 or approved equal.

Control enclosure shall be NEMA-3R made from 12-gauge Type 304 stainless steel with #3 finish. Seams shall be continuously welded and ground smooth. All hardware shall be type 304 stainless steel.

Enclosure shall be free standing with an overall height of 54-inches, a width of 48-inches and a depth of 24-inches. Enclosure shall have a 2-inch wide inside flange at the front, back and sides for anchoring to base. Side and back walls shall be stiffened with two vertical stainless steel equipment mounting rails per wall. The door frame shall be double flanged.

The cabinet top shall be sloped to drain and shall have a drip shield over door. Provide screened vent slots (1/8” x 1”) under the cabinet overhang located in the top face above door opening.

Outer door shall be NEMA 3R, 12-gauge, with cellular neoprene gasket and a three position door stop rod. Door shall be hinged with a continuous 14-gauge stainless steel hinge secured with ¼-20 stainless steel carriage bolts.

Provide 3-point latching system with 3/4" diameter stainless steel padlocking handle. Also provide a Corbin No.2 deadbolt lock with two keys.

Enclosure shall have a 0.125-inch thick 5052-H32 aluminum mounting panel at back (interior) of enclosure.

Provide plastic print pocket attached to inside of door.

B.2 Main Disconnect
200A, 2-pole, 600VAC, Square-D #JGL26200. Provide a NEMA 4X stainless steel enclosure Model J250DS-SPLO. Unit shall lockable in the ON and OFF position. Mount unit on exterior of enclosure.

B.3 Contactor
200A, 2-pole, Mechanically Held, 120V Coil, Square-D #8903-SVO10-V02. Mount directly to back panel. Construct separate latching / unlatching circuit using 8-pin DPDT relay and socket (120V coil, 10A contacts) Square-D or equal.

B.4 Control Transformer
240VAC Primary, 120VAC Secondary, 1PH, 3KVA, Square-D #3S1F. Furnish Square-D #9080FB1211R fuse block assembly with 15A fuse to protect line side of transformer.

B.5 Secondary Load Center
Provide circuit breaker enclosure for secondary circuits, Square-D #QO24L70S with one 20A breaker (#QO120) for maintenance circuit, one 15A breaker (#QO115) for photocell circuit, and one #PK0GTA2 Ground Bar.

B.6 Photocell
The photocell shall be of the button type and installed in the sidewall of the control cabinet facing north. Apply silicon caulk to maintain the integrity of the enclosure. The photocell shall be rated for 120V, 1800W with 30-60 second delay between "on-off" operations and be warranted for 5-years. Intermatic #K4021C or approved equal.

B.7 Hand-Off-Auto Switch
Square-D #9001-KS43B switch body, #9001-KA1 contact block and #9001-KN760WP nameplate mounted in Hoffman #E-1PB one hole box.

B.8 Other Devices
Furnish one 120V GFI duplex service receptacle in surface mounted box, and one 120V incandescent light fixture. Light fixture shall be wall mount type with gasketed vapor tight globe, wire guard, lamp, and on / off switch in surface mounted box.

Duplex GFCI Receptacle:	Hubbell #GFR52521A
4” SQ Deep Box:	Appleton #4SDEK with #8362 Cover
Vapor Tight Fixture:	Epco #15000 with 15063 Wire Guard
4” Oct. Box:	Appleton #40D-1/2
Bulb:	GE 60W
Light Switch:	Hubbell #HBL1201
4” SQ Deep Box:	Appleton #4SDEK with #8361 Cover

Provide an insulated groundable neutral assembly, and service ground kit

B.9 Neutral Bar – 240V Circuits

1/4”x 4”x 18” Copper Bus Bar with Mounting Hardware, Square-D #SN225KA or equal. Provide copper mechanical lugs for all conductors to bus bar, Burndy #KA25 or equal.

B.10 Panelboard

Panelboard shall include 240/480 volt, 225A Square ‘D’ panel, 200A main circuit breaker, eight 30A branch circuit breakers and ground bar as follows:

Panelboard:	(1) – Square-D 400A, 600V, I-Line, #HKA-225-S4 (Note: model based on need to maintain consistency with other distribution centers. Model is OEM)
Ground Bar:	(1) – Square-D #PK0GTA2
Main Breaker:	(1) – Square-D 2-Pole, 200A, 600V, I-Line, #JGA26200AB
Circuit Breakers:	(4) Square D I-Line 30A #FA-14030A (4) Square D I-Line 30A #FA-14030B

Provide fillers (Square-D #HNM1BL or #HNM4BL) as required.

All Materials and Methods of Construction shall be in accordance to the applicable provisions of standard spec 656.

C Construction

The contractor shall be responsible for coordinating the timely installation of the service lateral by the utility. Provide ground rods as shown with a minimum of four at 5/8" diameter by 10' long separated by not less than 10'-0" and ground conductor meeting Table 259-94 of the N.E.C. Connections between the ground conductor and ground rod shall be via an exothermic type connection process.

All wire in a conduit shall be pulled through at the same time. If required to pull wire through an occupied conduit, the existing wire shall first be removed and examined. If defective, the old wire shall be replaced for separate payment. If not defective, the old wire shall be pulled through with the new. Removal, inspection, and repulling of old wire is an incidental to the pulling of new wire. The cables shall be trained in straight horizontal and vertical directions and be parallel next to and adjacent to other cables whenever possible, using cable clamps attached with #10 screw to mounting panel, Panduit CCH series or approved equal. Adhesive type clamps are not allowed. All equipment shall be mounted to panel in enclosure unless otherwise indicated. Cabinet interior shall be cleaned of all construction debris prior to final acceptance.

Electrical permits and all applications will be required.

D Measurement
The department will measure Distribution Center Lighting – Wauwatosa as each individual unit, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.1120	Distribution Center Lighting - Wauwatosa	Each

Payment is full compensation for furnishing and installing all materials including electrical enclosure and all contents, construction and required line and load side connections; and for furnishing all incidentals.

98. Ground Rod, Item SPV.0060.2004.

A Description
This special provision describes furnishing and installing a ground rod and ground wire.

B Materials
Ground rod shall be copper clad steel with cladding 13 mils thick. The minimum diameter is 5/8-inch and the minimum length is 8-feet. Ground wire shall be AWG # 6 bare, solid copper.

C Construction
Use exothermic welding to connect the ground wire to the rod. Install the rod vertically, or as close to vertical as conditions permit. Select locations with moist soil, if available. Place the rod at least 6-feet from all other ground rods.

D Measurement
The department will measure Ground Rod by each individual unit, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price each under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2004	Ground Rod	Each

Payment is full compensation for furnishing and installation of the ground rod and ground wire; welding and connections at both ends of the ground wire.

99. Salvage Traveler Advisory Radio Flasher Assembly, Item SPV.0060.2005.

A Description

This special provision describes salvaging existing electronic flashers and associated electronic equipment from an existing static sign assembly on a side mount sign structure.

B Materials

Existing electronic flashers, controller, wireless communications interface, solar panel, cabinet, and batteries.

C Construction

Prior to beginning work, the contractor may request that it be tested for functionality and that it be inspected to determine condition. Once removal has started, the contractor shall be responsible for any damage to the flasher assembly or associated equipment. It will be the choice of the contractor on how best to disassemble the components and remove them. Replace or repair any damaged components at no additional expense to the department.

Carefully remove the flashers, including the solar panel, cabinet, and batteries, from the static sign assembly and store for later reinstallation.

Removal of the fixed message portion of the sign assembly will be paid for under other pay items in the contract.

D Measurement

The department will measure Salvage Traveler Advisory Radio Flasher Assembly by each individual salvaged unit, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2005	Salvage Traveler Advisory Radio Flasher Assembly	Each

Payment is full compensation for removing the flasher assemblies, including solar panel and cabinet and cables, including any necessary wiring disconnections; any necessary restoration; for storing the equipment for later installation.

100. Removing Controller Cabinet, Item SPV.0060.2006.

A Description

This special provision describes removing an existing controller cabinet.

B (Vacant)

C Construction

Remove controller cabinets at the locations shown on the plans, or as directed by the engineer. Salvage and store the cabinets and all contents for pick up by the department.

Do not remove the existing ITS control cabinets, or any other associated equipment until necessary, or as directed by the engineer. Carefully remove the existing cabinets from the concrete bases, together with all components in such a manner as to safeguard all parts and wiring from damage or loss. Salvage and store the cabinet and contents for pick up by the department.

Prior to removing the existing ITS control cabinets, remove all cables being terminated in the cabinet. Cut existing cables flush with cabinet base and cap existing conduits. Dispose of the cables properly away from the project area.

D Measurement

The department will measure Removing Controller Cabinet by each individual removed unit, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2006	Removing Controller Cabinet	Each

Payment is full compensation for removal and storage of the controller cabinet; disconnecting all associated wires and cables; and for capping existing conduits.

101. Removing Controller Cabinet Base, Item SPV.0060.2007.

A Description

This special provision describes removing an existing controller cabinet concrete base.

B Materials
Existing controller cabinet base, including concrete masonry, ground rods, masonry anchors, and restoration materials such as topsoil, seeding, mulch, and fertilizer in accordance to the pertinent provisions of standard spec 201, 625, 627, 629, 630, 636, and 640.

C Construction
Remove and dispose of the concrete foundation and all other pertinent materials, and restore the disturbed area by placing 4-inches of topsoil, and fertilize, seed, and mulch all disturbed areas in accordance to the pertinent requirements of the standard specifications.

D Measurement
The department will measure Removing Controller Cabinet Base by eah individual removed unit, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2007	Removing Controller Cabinet Base	Each

Payment is full compensation for removing and disposing of a concrete controller cabinet base, including masonry anchors, ground rods, and concrete masonry; and for topsoil, fertilizer, seed and mulch.

102. Removing Electrical Service Meter Breaker Pedestal, Item SPV.0060.2013.

A Description
This special provision describes removing an existing electrical service meter breaker pedestal, disconnecting all connected power wires, and disposing of the equipment appropriately.

B Materials
Existing electrical service meter breaker pedestal.

C Construction
Coordinate for removal of the existing electrical service meter breaker pedestal with WE Energies.

Disconnect all connected power wires, remove the pedestal and dispose of all materials properly away from the project area.

D Measurement
The department will measure Removing Electrical Service Meter Breaker Pedestal by each individual removed unit, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2013	Removing Electrical Service Meter Breaker Pedestal	Each

Payment is full compensation for coordination with WE Energies; for disconnection of wires; and for removal and disposal of the pedestal.

103. Install Salvaged Traveler Advisory Radio Flasher Assembly, Item SPV.0060.2015.

A Description
This special provision describes reinstalling previously salvaged electronic flashers and associated electronic equipment on a new static sign assembly on a side mount sign structure.

Installation of the fixed message sign, structural steel, and concrete footings will be paid for under other pay items in this contract.

B Materials
Salvaged electronic flashers, controller, wireless communications interface solar panel, cabinet, and batteries.

C Construction
Coordinate all work with the static message sign portion of the project.

Mount the flashers, controller, wireless communications interface, solar panel, cabinet, and batteries to the new structural steel sign supports with new stainless steel mounting hardware.

D Measurement
The department will measure Install Salvaged Traveler Advisory Radio Flasher Assembly by each individual unit, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2015	Install Salvaged Traveler Advisory Radio Flasher Assembly	Each

Payment is full compensation for installing the salvaged flashers, including controller, wireless communications interface, solar panel, cabinet, batteries and cables, including any necessary wiring disconnections; and for any necessary restoration.

104. Install Solar Power System Assembly, Item SPV.0060.2016.

A Description

This special provision describes installing a combination of department-furnished and contractor furnished materials to convert an existing hard-wire powered flasher sign assembly to a solar-powered system.

B Materials

Materials will include department-furnished materials and contractor furnished materials.

Department-furnished materials include the following:

- One solar power system consisting of 2-85W panels, 2-120 Amp-Hour batteries, a solar power controller, and one solar power cabinet to house the batteries and controller.

Contractor furnished materials include the following:

- Metallic conduit meeting the requirements of standard spec 652.
- Mounting hardware for solar power system.
- Cables and wires meeting the requirements of standard spec 655.

C Construction

Safely disconnect the existing hard-wired power connection.

Solar Power System Installation:
Install the solar panels facing south on the structure with the devices to be powered. If a compass is used, a correction must be made for the difference between magnetic north and true north. Install the solar panels at a tilt angle of approximately 60 degrees. The tilt angle shall be considered the angle from horizontal to the front, or face of the solar panel.

Mount the cabinet to the pole by the two cast aluminum mounting brackets which are already attached to the back of the cabinet. The brackets shall be attached to the structure using stainless steel bands or U-bolts.

Install the cabling, ensuring that cables enter the cabinet only through the bottom, and that strain relief fittings are used to seal cable entrance points. Connect the panel to the charge controller, connecting the white wire to the positive (+) terminal and the black wire to the negative terminal (-).

D Measurement

The department will measure Install Solar Power System Assembly as each individual unit, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price each under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2016	Install Solar Power System Assembly	Each

Payment is full compensation for providing the contractor furnished materials, assembling the department-furnished and contractor furnished materials, installing the assembly, and for making the assembly functional.

105. Install Temporary Vehicle Detector Assembly, Item SPV.0060.2018.

A Description

This special provision describes assembling from a combination of department-furnished and contractor furnished materials a temporary vehicle detector assembly and installing, calibrating, and integrating the assembly into the existing system.

B Materials

Materials will include department-furnished materials and contractor furnished materials.

Department-furnished materials include the following:

- One Electronic Integrated Systems, Inc. (EIS) Remote Traffic Microwave Sensor (RTMS) with integral 900 MHz serial radio.
- One solar power system consisting of 2-85W panels, 2-120 Amp-Hour batteries, a solar power controller, and one solar power cabinet to house the batteries and controller.

Contractor furnished materials include the following:

- One 30-foot type 4 or larger wood pole. The wood pole shall be western red cedar in accordance to ANSI standards 05.1. Pressure treatment shall be 5% pentachlorophenol with a minimum of 8 pounds per cubic foot net retention of the oil-borne preservative. Pole shall be shaved the entire length.
- Outdoor rated Power cable between solar power system output and state-furnished RTMS.
- Mounting hardware for solar power system and RTMS detector.

C Construction

RTMS Detector Installation:

Install the wood pole according to industry standards for supplied pole length.

Install the RTMS detector as required in standard spec 675. Additionally, integrate the integral serial communications radio with the radio installed at the field cabinet end. Installation of field cabinet radio is covered with other pay items in this contract.

Solar Power System Installation:

Install the solar panels facing south on the pole with the devices to be powered. If a compass is used, a correction must be made for the difference between magnetic north and true north. Install the solar panels at a tilt angle of approximately 60 degrees. The tilt angle shall be considered the angle from horizontal to the front, or face of the solar panel.

Mount the cabinet to the pole by the two cast aluminum mounting brackets which are already attached to the back of the cabinet. The brackets shall be attached to the pole using stainless steel bands or U-bolts.

Install the cabling, ensuring that cables enter the cabinet only through the bottom, and that strain relief fittings are used to seal cable entrance points. Connect the panel to the charge controller, connecting the white wire to the positive (+) terminal and the black wire to the negative terminal (-).

D Measurement
The department will measure Install Temporary Vehicle Detector Assembly as each individual unit, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price each under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2018	Install Temporary Vehicle Detector Assembly	Each

Payment is full compensation for providing the contractor furnished materials, assembling the department-furnished and contractor furnished materials, installing the assembly, calibrating the detector, and making the assembly functional and focused on initial traffic lane configuration.

106. Refocusing Temporary Vehicle Detector Assembly, Item SPV.0060.2019.

A Description
This special provision describes refocusing an existing microwave detector for operation with a new lane configuration when relocation of the Temporary Vehicle Detector Assembly (TVDA) pole is not required.

B Materials
The following existing materials shall be utilized:

- One (1) Electronic Integrated Systems, Inc. (EIS) Remote Traffic Microwave Sensor (RTMS) with integral 900 MHz serial radio.
- Mounting hardware for solar power system and RTMS detector.

C Construction
Coordinate all planned down-time of the temporary vehicle detector assembly with the STOC at (414) 227-2166. Notify the STOC an amount of time ahead of planned down-time equal to the planned down-time. Examples would be that a 4-hour temporary down-time of the system would require notification 4-hours ahead of time while an 8-hour planned down-time would require 8-hours of advance notification.

Verify to the satisfaction of the engineer that the existing detector assembly is working properly. Inspect the vehicle detector assembly for damage.

Reinstall the RTMS detector as required in standard spec 675. Additionally, integrate the integral serial communications radio with the radio installed at the base-Station field cabinet, and return the TVDA to operation.

D Measurement
The department will measure Refocusing Temporary Vehicle Detector Assembly by each individual unit, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price each under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2019	Refocusing Temporary Vehicle Detector Assembly	Each

Payment is full compensation for making the detector fully operational with a new lane configuration.

107. Bury Existing Type 1 Manhole, Item SPV.0060.0025.

A Description
This special provision describes modifying and burying an existing pre-cast concrete Type 1 Manhole without disturbing the conduit and cable running through the manhole.

B Materials
Existing pre-cast concrete Type 1 Manhole.

Furnish a manhole frame and lid made for a 48-inch diameter opening and meeting the requirements of AASHTO M306.

C Construction
Carefully excavate the area around the existing manhole to a depth of 12-inches above the existing conduit installed in the manhole. Excavate an area adequate to allow for completion of the construction operations described in this pay item.

Remove and dispose of the existing frame and lid.

Cut around the entire existing manhole approximately 12-inches above the existing conduits.

Lift off the part of the existing manhole above the cut.

Place a bead of tar, or sealant made for concrete to steel adhesion, around the exposed top of the existing manhole.

Place the new manhole lid frame on the tar or sealant and allow the tar or sealant to set per manufacturer's recommendations.

Place another bead of tar or sealant on the inside of the new manhole frame and place the new manhole lid in the frame.

Allow the tar or sealant to set per the manufacturer's recommendations and backfill the area above and around the manhole. Compact the backfilled soil per the requirements of the standard specifications.

D Measurement
The department will measure Bury Existing Type 1 Manhole by each individual unit, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price each under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0025	Bury Existing Type 1 Manhole	Each

Payment is full compensation for excavation of the area around the manhole, cutting the manhole for removal of top piece, and for furnishing and installing the new manhole frame and lid.

108. Poles Type 10, Item SPV.0060.3001.

A Description
Work under this item consists of furnishing and installing monotube poles at the intersection of W. Watertown Plank Road and Innovation Drive.

B Materials
Design support structures conforming to the minimum wall thickness the plan details show and to AASHTO design and fabrication standards for structural supports for highway signs, luminaries, and traffic signals. Use a design life of 50 years. Design to withstand a 3 second gust wind speed of 90 mph (145 km/h). Do not use the methods of Appendix C of those AASHTO standards.

Use Category III criteria for Type 9 and Type 10 Poles. Use Category II criteria for Type 12 and Type 13 Poles.

For structures requiring a fatigue analysis, use 45 mph (72 km/h) for truck-induced gusts.

After welding and before zinc coating, clean the exterior surface of each steel pole free of all loose rust and mill scale, dirt, oil or grease, and other foreign substances.

Apply a zinc coating conforming to the process specified for steel sign bridges in standard spec 641.2.8. Ensure that the zinc coating is tight, free from rough areas or slag, and presents a uniform appearance.

After completing manufacturing, clean the exterior surfaces of each pole free of all loose scale, dirt, oil or grease, and other foreign substances.

Provide a reinforced hand hole measuring 4 inches by 6 inches (100 mm by 150 mm) as the plans show. Locate the hand hole 18 inches (450 mm) from the bottom of the pole base to the center of the door.

For the hand hole, include an access cover mounted to the pole by two ¼"-20 x ¾" (m6 x 1.00 x 19 mm) hex-head stainless steel bolts.

Provide a grounding lug complete with mounting hardware, as required, inside the pole as the plans show.

Provide access to the grounding lug from the hand hole. Weld the ground lug directly opposite the hand hole on the inside wall of the pole.

Equip the top of the shaft with a removable, ventilated cap held securely in place by at least 3 ¼" -20 x ¾" (m6 x 1.00 x 19 mm) hex-head stainless steel set screws.

Ensure that all castings are clean, smooth, and with all details well defined and true to pattern.

Attach base plates firmly to the pole shaft by welding or other approved method.

Provide anchor bolts meeting AASHTO standards applicable to the pole type and loading (see SDDs Type 10 Pole 15'-30' Monotube Arm and General Notes and Hardware Details for Type 9, 10, 12, 13 Poles with Monotube Arms for specific pole types).

Provide anchor bolt templates as shown on the standard detail drawings for the concrete base to ensure correct alignment of anchor bolts in foundation (see SDDs Concrete Base Type 10 and Concrete Base Type 10 and Type 13 Extension for specific base types).

C Construction

Clean each pole before installation.

Install poles as specified in the plan details. Secure pole to anchor assembly and document tensioning procedures conforming to standard spec 641.3.1.2.

After completing erection using normal pole shaft raking techniques, ensure the centerline of the shaft is vertical.

Install identification plaques as the plans show.

D Measurement

The department will measure Poles (Type) as each individual pole, acceptably completed.

E Payment

The department will pay measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.3001	Poles Type 10	Each

Payment is full compensation for providing and installing poles including all hardware and fittings necessary to install the poles; and for installing identification plaques, if required.

109. Concrete Bases Type 10 Contractor Supplied Anchor Bolts and Anchor Rod Template, Item SPV.0060.3002.

A Description

This special provision describes constructing concrete bases, including the use of contractor supplied anchor bolts and anchor rod templates.

B Materials

B1. Concrete Bases

Furnish grade A, A-FA, A-S, A-T, A-IS, or A-IP concrete conforming to standard spec 501.2 as modified in standard spec 716. Provide QMP for class III ancillary concrete as specified in section 716.

Furnish bar steel reinforcement conforming to standard spec 505.2.

Use schedule 40 PVC electrical conduit conforming to the electrical conduit specified in standard spec 652.

B2. Anchor Bolts

Provide anchor bolts conforming to AASHTO M 314, grade 55 and Supplementary Specification S1, or ASTM F1554 Grade 55. Threads on bolts shall be formed by rolling.

Hot-dip galvanize the entire length of the anchor rods according to AASHTO M111. Hot-dip the nuts and washers according to AASHTO M232. Use zinc coated nuts manufactured with sufficient allowance to allow nuts to run freely on the threads.

B3. Anchor Rod Template

Furnish a steel top and bottom template conforming to ASTM A709, grade 36 as part of each anchor assembly. Provide a top template of sufficient gauge to hold the anchor rods securely in position at the top, and resist racking or twisting during the pour. Use a ½-inch thick bottom anchor plate-template and secure it to each anchor rod. Templates shall not be welded to the anchor rods.

C Construction

C1. Concrete Bases

Construct concrete bases, including necessary hardware, as specified in section 501 of the standard specification and plan details, and provide the surface finish specified in standard spec 502.3.7.2. Inspect the forming and applicable reinforcement for concrete

bases before pouring the concrete. Cure exposed portions of concrete bases as specified for concrete pavement in standard spec 415.3.12 except the contractor may use curing compound conforming to standard spec 501.2.9. Wait at least 7 days before installing poles.

C2. Anchor Bolts
Lubricate anchor bolt threads and nuts with bees wax or other high-wax lubricant. Set leveling nuts to the required elevation before installing the structure. Adjust top nuts and leveling nuts to align and plumb the structure. Ensure that all nuts are snug-tight with no gaps. Tighten each top nut 1/3 turn past snug for bolts 1 1/2 inch or smaller in diameter and 1/6 turn for larger diameter bolts conforming to the tightening sequence specified on department form DT 2321. If required, install jamb nuts wrench tight.

Complete department form DT 2321 for each structure. Indicate the parties responsible for the installation and submit the form to the engineer for inclusion in the permanent project record.

C3. Anchor Rod Templates
Secure the anchor rod template to all anchor rods at one time in its correct position as the plan details show. Ensure relative movement and misalignment does not occur. If any twisting, racking, or other movement of the anchor rods out of plumb, projection, or pattern, or any damage to the threads exists the engineer will reject the entire base.

Maintain the clear distance between the soil and the reinforcing steel cage using the means the plan detail shows. Do not weld the anchor rods to each other, the reinforcing steel cage, and the templates or to any other component of the foundation.

If an anchor rod template is located above the concrete surface, it may be removed 24 hours after placing the concrete.

D Measurement
The department will measure Concrete Bases (Type), Contractor Supplied Anchor Bolts and Anchor Rod Template by each individual unit, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.3002	Concrete Bases Type 10 Contractor Supplied Anchor Bolts and Anchor Rod Template	Each

Payment for the Concrete Bases (Type), Contractor Supplied Anchor Bolts and Anchor Rod Template is full compensation for providing concrete, reinforcing steel, and electrical conduit; for providing anchor rods, templates, nuts, and washers; for excavating; for driving steel piling, if required; for installing electrical conduit, electrical ground, templates; for placing and curing concrete; for backfilling; and for disposing of surplus material and restoring the site.

110. Anchor Assemblies Light Poles Structures, Item SPV.0060.4100.

A Description

Furnish and install anchor bolt assemblies for light poles, noise barriers and signal poles that will be installed on bridges and retaining walls as shown on the plans.

B Materials

Anchor bolts shall be of size and spacing as given on the plans and conform to AASHTO M 314 GR 105. Provide heavy hex nuts conforming to AASHTO M 292 and hardened washers conforming to AASHTO M 293. Provide embedded anchor plates for anchor assemblies as shown on the plans conforming to AASHTO M 223. Provide six nuts and washers per anchor bolt for Anchor Assemblies Light Pole Structures. Provide five nuts and washers per anchor bolt for Anchor Assemblies Noise Barriers Structures. Provide four nuts and washers per anchor bolt for Anchor Assemblies Signal Poles Structures.

Hot dip galvanize the entire anchor assembly. Galvanize embedded anchor plates conforming to AASHTO M 111 and galvanize anchor bolts, nuts and washers conforming to AASHTO M 232. Provide enlarged threads on nuts for proper fit after galvanizing.

C Construction

Install embedded anchor assemblies in concrete structures at locations as shown on the plans. Mount anchor assemblies to formwork or otherwise provide positive support of anchor assembly within formwork as necessary to prevent movement, shifting or misalignment of the anchor assembly during subsequent concrete placement. Protect or clean exposed anchor bolt threads from concrete splatter.

Coordinate location and spacing of anchor assemblies embedded in bridges and retaining walls for mounting noise barriers on bridges and retaining walls with approved noise barrier shop drawings.

D Measurement

The department will measure Anchor Assemblies Light Poles Structures by each individual anchor assembly, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.4100	Anchor Assemblies Light Poles Structures	Each

Payment is full compensation for furnishing and installing the anchorages.

111. Pile Dynamic Analyzer (PDA) Testing, Item SPV. 0060.4110; Pile Dynamic Analyzer (PDA) Restrikes, Item SPV. 0060.4120.

A Description

These items consist of providing means to perform Pile Dynamic Analyzer (PDA) load testing by the engineer, as outlined in the contract plans and this special provision. This Dynamic Pile Load Testing is being done to set pile resistance criteria. Production piles will be driven in accordance to pile resistance criteria produced by the engineer after PDA testing at each substructure unit. PDA Restrikes will be needed as described in this special provision and/or as directed by the engineer.

The piles and pile driving will be paid for under the appropriate special provision for piles and pile driving contained within this contract. This applies to both piles installed using the PDA criteria and for production piles installed using the criteria developed by the engineer from the PDA installations.

Data collected during the testing described herein will form the basis for the final driving criteria to be applied to production piles in the substructure unit under consideration.

B (Vacant)

C Construction

C1 Test Locations

The engineer will perform dynamic pile load testing at the pile locations identified on the plans. These locations are referred to simply as 'PDA Test Piles' throughout the remainder of this specification. Piles noted as PDA Test Piles are a functional load-carrying part of the completed foundation unit and not solely used for testing.

C2 Driving Sequence

The engineer will perform PDA testing on the first piles installed in the substructure. PDA Test Piles shall be located as shown on the footing plan. No other piles in the substructure unit shall be used for PDA testing unless agreed to by the engineer. Do not drive any other piles in the unit until all required testing has been completed and accepted by the engineer and the final driving criteria for that substructure unit has been determined and issued to the contractor in writing.

C3 Pile Driving

Drive PDA Test Piles to penetration depths and/or penetration resistances as directed by the engineer. Drive PDA Test Piles using the accepted production driving equipment.

C4 Scheduling

Provide a written schedule to the engineer showing all required PDA Test Piles activities for the following week. Submit this schedule a minimum of 2 working days prior to the first day included in the schedule. Schedule the work so that PDA testing activities of any kind - installation tests, or restrike tests - will occur at no more than two locations at any given time. Schedule a minimum of one complete working day after PDA testing, (which

includes restrike testing, see section C 6) is complete at a substructure unit for the engineer to provide final driving criteria for that location. If testing is complete at multiple substructure units, final driving criteria will be provided at the maximum rate of one substructure unit per one working day and in the order specified by the contractor in the testing schedule.

C5 Installation Testing

The engineer will take dynamic measurements following procedures set forth in ASTM D-4945 during the driving of piles designated as PDA Test Piles.

Prior to placement in the leads, make each designated PDA Test Pile available for predrilling the required instrument attachment holes. Support PDA Test Piles on blocking, and roll or re-position PDA Test Piles as required to facilitate the predrilling of attachment holes. The engineer will furnish the equipment, materials, and labor necessary for drilling holes in the piles. Allow a minimum of one hour per pile for this operation. Furnish vehicle access to the substructure unit to allow for PDA testing.

Attach and remove the instruments to and from the pile following the engineer's instructions. Take precautions and exercise care to ensure that gauges and sensors are not damaged during installation or pile movement. Check and reinstall gauges and sensors during pile driving operations at the direction of the engineer. The engineer has the option to access a pile in the leads prior to and during driving operations to ensure that the gauges and sensors have been properly installed. Make available to the engineer a safety line attached to the pile leads for the engineer's use. Provide the engineer with sufficient time to inspect, attach, and remove gauges and sensors on the pile, if it is necessary.

It is estimated that approximately one hour per pile will be needed for both instrument attachment and removal for a total of 2 hours per installation. Continuous PDA monitoring may require multiple installations of PDA testing equipment depending on the supplied pile length. If multiple pile lengths are used to produce the final installed pile, multiple PDA equipment installations will be required.

Furnish electric power for the dynamic test equipment. The power supply at the outlet shall be 10-amp, 115-volt, 55- to 60-cycle, alternating current (AC) only. Field generators used as the power source shall be equipped with functioning meters for monitoring voltage and frequency levels.

Pile-driving criteria for each substructure unit shall be determined from dynamic pile tests conducted on the total length of each pile noted for PDA Testing in the plans. Driving on these piles shall continue until the required driving resistance is achieved for 30 consecutive hammer blows. Mark penetration per 10 consecutive hammer blows as directed by the engineer. The engineer will utilize the dynamic test data to establish the following pile driving criteria: (1) a minimum driven length below cutoff level, and (2) a maximum penetration rate per 10 hammer blows for 30 consecutive blows. Drive all remaining piles in that unit in accordance to the established criteria. The engineer may

alter driving criteria as necessary to assure development of adequate pile capacity. In any pile where pile capacity or integrity is suspect, the engineer may order PDA testing.

With the PDA testing equipment attached, drive the pile as directed by the engineer.

C6 Restrike Tests
An initial restrike test will be performed on all test piles as part of the initial dynamic pile load test as described in section C.5.

Wait a minimum of 6 hours, or a shorter time period as directed by the engineer, after initial pile installation is complete; then, restrike each test pile with the required dynamic testing instruments attached.

Warm the hammer before the restrike by applying at least 20 blows to a non-test pile, or by other means acceptable to the engineer.

The maximum amount of penetration required during the restrike test will be 6 inches, or the maximum number of hammer blows required will be 30, whichever occurs first.

The pre-approved pile-driving hammer used for restrike testing shall be capable of supplying enough energy to develop a minimum of twice the required driving resistance shown on the plans.

Required driving resistance for production piles will be determined by dynamic pile testing conducted by the engineer.

D Measurement
The department will measure Pile Dynamic Analyzer PDA Testing as each individual unit, acceptably completed, in which one unit includes all PDA-related effort on one pile during the initial driving. The department will measure PDA Restrikes as each individual unit, acceptably completed, in which one unit includes all of the restrike testing required each time the contractor sets up on a pile to do a restrike test.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.4110	Pile Dynamic Analyzer (PDA)Testing	Each
SPV.0060.4120	Pile Dynamic Analyzer (PDA) Restrikes	Each

Payment for PDA Testing is full compensation for facilitating the initial dynamic pile load test on a given pile, including the possible multiple sensor installations.

Payment for PDA Restrikes is full compensation for facilitating and performing one restrike test, including the sensor installation.

F Delays and Standby Time
The department will assess a penalty if the contractor is not ready when the department/engineer is requested to perform the PDA tests on piles, and the department is unable to begin PDA testing on the same working day as scheduled, due to contractor delay. The penalty will be $1500 per working day for furnishing all working days that PDA Testing is scheduled on the project site, but no PDA testing is completed due to the contractor not being ready to perform the scheduled monitoring/driving.

112. Resilient Wedge Gate Valve, 6-Inch, Item SPV.0060.5000; Resilient Wedge Gate Valve, 8-Inch, Item SPV.0060.5001.

A Description
This work includes providing and installing resilient wedge gate valves at locations indicated in the plans, conforming to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition and as hereinafter provided.

B Materials
B.1 Resilient Wedge Gate Valves
City of Wauwatosa standard conforming to AWWA C509, 200 psi working pressure; non-rising bronze stem; valve opens clockwise.

Internal parts accessible without removing main body from pressure line.

Internal diameter of valve shall be equal to or greater than connection pipe diameter. Furnish with mechanical joint ends and 2-inch operating nut. Use corrosion resistant steel nuts and bolts, NSS Technologies, Inc., Cor-Blue or an approved equal.

B.2 Valve Box Adaptor
Furnish epoxy-coated, 1/4-inch steel, rubber gasket and size to fit valve. Similar and equal to adaptors manufactured by Adaptor, Inc., West Allis, WI.

B.3 Polyethylene Sheeting for Pipe Corrosion Protection
Polyethylene sheeting conforming to ASTM D4976, Type I, Class B, Color: Black, Grade E-1, 1200 psi tensile strength, minimum thickness of 8 mil. Tube diameter or sheet width shall conform to AWWA C105.

Furnish tape for polyethylene sheeting that is 2-inch wide, black tape with rubber adhesive and minimum 9 mil polyethylene backing. Tape shall be 3M™ Preservation Sealing Tape 481 or an approved equal.

C Construction
C.1 General
Install valve in closed position and in accordance to manufacturer's instructions.

Set valve on solid masonry concrete blocking (16-Inch x 8-Inch x 4-Inch) with long dimension of block perpendicular to water main and level.

Extend bedding and compact up to elevation required to set valve box adaptor over valve.

Set valve box on valve box adaptor. Verify centered location and check installation by applying key over valve nut to verify access and operation.

Place additional bedding material to a minimum depth of 6 inches around valve box and compact to prevent box or adaptor from shifting.

Extend valve box to subgrade and place a sheet of polyethylene over shaft prior to inserting cover to seal box.

Adjustment of valve box to temporary and finished grades will be responsibility of grading or paving contractor.

Coat internal cast iron surfaces with two coats of corrosion resistant coating.

D Measurement
The department will measure Resilient Wedge Gate Valve (Inch) as each individual valve, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.5000	Resilient Wedge Gate Valve, 6-Inch	Each
SPV.0060.5001	Resilient Wedge Gate Valve, 8-Inch	Each

Payment is full compensation for furnishing and installing all materials; and for excavating, backfilling, and compacting.

113. Hydrant Assembly, Item SPV.0060.5002.

A Description
This work includes providing and installing new hydrants at locations indicated in the plans, conforming to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition and as hereinafter provided.

B Materials
B.1 New Hydrant Assembly
Provide new water main hydrants and hydrant lead piping boxes meeting the requirements of the City of Wauwatosa.

Hydrant shall be a AWWA C502 hydrant with all operating nuts and hose connections meeting City of Wauwatosa size requirements.

B.2 Hydrant Lead Piping
Ductile iron (DI) piping shall be in accordance to AWWA C150, Class 55. Design pipe designed for rubber push-on gasket joints conforming to AWWA C111.

Cast in or stamp on pipe manufacturer's mark, year of production, and "DI' or "DUCTILE.'

Pipe shall be cement mortar lined and have internal and external bituminous coats.

B.3 Fittings
Fittings shall conform to AWWA C110, centrifugally cast in metal or sand-lined molds. Use of compact fittings conforming to AWWA C153 is acceptable. In no case shall fitting grade rating less than adjoining pipe.

Fittings shall be from same manufacturer as pipe.

Join pipe and fittings by means of a push-on rubber gasket joints conforming to AWWA C111.

Nuts and bolts for joints and fittings shall be corrosion resistant steel, NSS Technologies, Inc., Cor-Blue or approved equal.

B.4 Polyethylene Sheeting for Pipe Corrosion Protection
Polyethylene sheeting conforming to ASTM D4976, Type I, Class B, color black, Grade E-1, 1200 psi tensile strength, minimum thickness of 8 mil. Tube diameter or sheet width shall conform to AWWA C105.

Provide tape for polyethylene sheeting that is 2-inch wide, black tape with rubber adhesive and minimum 9 mil polyethylene backing. Tape shall be 3M™ Preservation Sealing Tape 481 or an approved equal.

C Construction
C.1 General
In accordance to Wisconsin Statute 182.0175, "Damage to Transmission Facilities," Excavator, as defined in 182.0175(1)(bm), shall be solely responsible to provide advance notice to "Diggers Hotline, Inc." (800) 242-8511 not less than three working days prior to commencement of any Excavation, as defined in the statute, required to perform work contained in this Project, and further, Excavator shall comply with all other requirements of this Statute relative to Excavation.

Before beginning excavation of trench, contractor shall uncover existing water main to which new hydrant tee and lead piping is to connect to verify line, grade and connection required.

C.2 Installation of Hydrant Assembly
Provide hydrants, hydrant lead valves, fittings, and branch T-connectors with independent support of minimum 16-Inch x 8-Inch x 4-Inch solid block or 3000 psi formed concrete pad.

Place crushed clear stone below base of hydrant to 6 inches above drain holes in hydrant stem.

Set hydrant plumb and centerline of hydrant vertical. Solidly buttress hydrant against trench wall.

Locate hydrant at municipal standard distance behind face of curb and set lowest hose connection at utility standard dimension above proposed finished grade.

D Measurement
The department will measure Hydrant Assembly by each individual hydrant assembly acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.5002	Hydrant Assembly	Each

Payment is full compensation for furnishing and installing all materials; and for excavating, backfilling, and compacting.

114. Butterfly Valve, 16-Inch, Item SPV.0060.5003; Butterfly Valve, 12-Inch, Item SPV.0060.5004.

A Description
This work includes providing and installing butterfly valves at locations indicated in the plans, conforming to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition and as hereinafter provided.

B Materials
B.1 Butterfly Valves
City of Wauwatosa standard conforming to AWWA C504, 150 psi working pressure; non-rising bronze stem; valve opens clockwise.

Internal parts accessible without removing main body from pressure line.

Internal diameter of valve shall be equal to or greater than connection pipe diameter.

Furnish with mechanical joint ends and 2-inch operating nut. Use corrosion resistant steel nuts and bolts, NSS Technologies, Inc., Cor-Blue or an approved equal.

B.2 Valve Box Adaptor
Furnish epoxy-coated, 1/4-inch steel, rubber gasket and size to fit valve. Similar and equal to adaptors manufactured by Adaptor, Inc., West Allis, WI.

B.3 Polyethylene Sheeting for Pipe Corrosion Protection
Polyethylene sheeting conforming to ASTM D4976, Type I, Class B, Color: Black, Grade E-1, 1200 psi tensile strength, minimum thickness of 8 mil. Tube diameter or sheet width shall conform to AWWA C105.

Furnish tape for polyethylene sheeting that is 2-inch wide, black tape with rubber adhesive and minimum 9 mil polyethylene backing. Tape shall be 3M™ Preservation Sealing Tape 481 or an approved equal.

C Construction
C.1 General
Install valve in closed position and in accordance to manufacturer's instructions.

Set valve on solid masonry concrete blocking (16-Inch x 8-Inch x 4-Inch) with long dimension of block perpendicular to water main and level.

Extend bedding and compact up to elevation required to set valve box adaptor over valve.

Set valve box on valve box adaptor. Verify centered location and check installation by applying key over valve nut to verify access and operation.

Place additional bedding material to a minimum depth of 6 inches around valve box and compact to prevent box or adaptor from shifting.

Extend valve box to subgrade and place a sheet of polyethylene over shaft prior to inserting cover to seal box.

Adjustment of valve box to temporary and finished grades will be responsibility of grading or paving contractor.

Coat internal cast iron surfaces with two coats of corrosion resistant coating.

D Measurement
The department will measure Butterfly Valve, (Inch) by each individual valve, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.5003	Butterfly Valve, 16-Inch	Each
SPV.0060.5004	Butterfly Valve, 12-Inch	Each

Payment is full compensation for furnishing and installing all materials; excavating, backfilling, and compacting.

115. Cut and Cap Water Main, Item SPV.0060.5005.

A Description
Cut and cap existing water main, in accordance to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest Edition.

B (Vacant)

C Construction
Furnish Backfill Slurry in accordance to the pertinent requirements of standard spec 209.

D Measurement
The department will measure Cut and Cap Water Main as each individual cut and cap, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.5005	Cut and Cap Water Main	Each

Payment is full compensation for performing work, for providing all materials; for furnishing all excavation; and for providing Backfill Slurry material.

116. Salvage Hydrant, Item SPV.0060.5006.

A Description
Remove existing hydrants, in accordance to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest Edition.

B (Vacant)

C Construction
Furnish Backfill Slurry in accordance to the pertinent requirements of standard spec 209.

Return hydrants to Milwaukee County. Contact Thomas Travia, (414) 257-6418 office / (414) 339-0408 cell, of Milwaukee County 3 days in advance to coordinate a drop off location for these hydrants in the Milwaukee County Public Works yard.

D Measurement
The department will measure Salvage Hydrant as each individual salvaged hydrant, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.5006	Salvage Hydrant	Each

Payment is full compensation for salvaging hydrant, providing all materials; for furnishing all excavation; for providing Backfill Slurry material; and for delivery of hydrant.

117. Abandon Existing Sanitary Manhole, Item SPV.0060.5007.

A Description
This work includes abandoning existing sanitary structures in place, in accordance to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest Edition.

B Materials
Furnish Backfill Slurry in accordance to the pertinent requirements of standard spec 209 except as hereinafter modified. Use aggregates that conform to standard spec 501 for Grade A Concrete. Weigh aggregates at a batch plant suitable for batching concrete masonry. Mix and deliver to the project site using a truck mixer. Add enough water to enable the mixture to flow readily. Furnish brick and mortar to complete the bulkheads as specified in the plans.

C Construction
Clean manhole thoroughly. Plug the existing pipe with an 8-inch brick or concrete wall. Remove the walls of the structure to a depth of 3 feet below grade or to the base if directed by the engineer. Fill the excavation with Backfill Slurry, to existing surface or to appropriate depth for pavement restoration.

D Measurement
The department will measure Abandon Existing Sanitary Manhole as a unit for each individual manhole, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.5007	Abandon Existing Sanitary Manhole	Each

Payment is full compensation for furnishing and installing all materials; for providing positive drainage of the area to be backfilled; bulkheads and for furnishing and placing Backfill Slurry; and for disposing of materials.

118. Crossroad Name Signs Special Sign Supports, Item SPV.0060.7010.

A Description

This work consists of fabricating, galvanizing, delivering and installing Sign Structures as shown on the plans and installation of aluminum signs on structure.

B Materials

B.1 General

All structural steel and welding materials shall meet the requirements as shown on the plans and the applicable provisions in standard spec 506.

Prior to fabrication, steel shall be blast cleaned per SSPC-SP 6 and galvanized according to ASTM A 123. All bolts, nuts and washers shall be supplied as factory galvanized according to ASTM A 153. Repair zinc coating damaged during fabrication as specified in standard spec 635.3.4. Grind the welded joints to a smooth finish where shown in the plans.

Steel preparation includes the chamfering of sharp edges. All sharp edges shall be flattened by a single pass of a grinder or suitable device along the sharp edge. Condition any thermal cut edges before blast cleaning by shallow grinding or other cleaning to remove any hardened surface layer. Remove all evident steel defects exposed in accordance to AASHTO M 160 prior to blast cleaning.

C Construction

Provide shop drawings in accordance to the requirements of standard spec 506.3.2. Shop drawings shall contain material sizes and types, weld sizes and locations, and all necessary details, dimensions, and information to allow fabrication of the sign structure in conformance with the requirements of the contract. Do not begin fabrication prior to shop drawing review and acceptance.

Contractor shall provide a test segment of two different sized tubular components welded together and with the proper finish for the sign structures. The test segment shall consist of two pieces 2 feet long, welded and finished. The test segment shall be delivered to the job site within 60 days of the award of the contract. Contractor shall deliver the test segment to a location within the project area as designated by the engineer. Do not begin fabrication of sign structures prior to the test segment acceptance.

During construction and at the time of delivery the engineer shall inspect the sign structures for any shipping damage or construction defects. The engineer shall accept the product after the delivery is unloaded on the site. After the product is unloaded, the installation contractor will signify in writing that the sign structures were received in acceptable condition per the engineer's inspection. Any damage to the sign structures after the acceptable delivery will be the responsibility of the installation contractor.

All welding shall conform to the applicable requirements of standard spec 506. No field welding, field cutting, or drilling will be permitted without the approval of the engineer.

Provide the engineer with the name, address, and phone number of a representative of sign structure fabricator for future coordination.

During handling, protect finish coating from damage. If damaged during handling the sign structures may be rejected by the engineer or engineer may direct fabricator that the finish shall be repaired in accordance to the manufacturer's recommendations.

Contractor shall remove and dispose of all excess material from site.

D Measurement
The department will measure Crossroad Name Signs Special Sign Supports by each individual unit, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.7010	Crossroad Name Signs Special Sign Supports	Each

Payment is full compensation for fabricating, galvanizing and delivering sign structures, providing structure test segment and delivering to site; fabricating, furnishing, delivering and unloading sign structures, installing sign structures, installing aluminum signs and installing hardware; for preparing shop drawings, and for galvanizing metal sign structures.

119. Concrete Foundation Advanced Crossroad Name Signs Special Sign Support, Item SPV.0060.7011.

A Description
This special provision describes constructing concrete foundations at the locations as shown on the plans or as directed by the engineer.

B Materials
Furnish bar steel reinforcement conforming to standard spec 505.2.

Furnish grade A, A-FA, A-S, A-T, A-IS, or A-IP concrete conforming to standard spec 501.2.

C Construction
Construct concrete foundations, including necessary hardware and anchor bolts as shown in the plan details. In the event there are conflicts with existing utilities it may be necessary to shift foundation locations. If foundations are shifted to avoid utilities, contractor shall receive written approval from the engineer for the new location.

Construct concrete foundations as specified in standard spec 501, and provide the surface finish specified in standard spec 502.3.7.2 and plan details. Finish the concrete foundations to support sign structures or banner posts with structures and posts bearing evenly on the foundation. Inspect the forming and applicable reinforcement for concrete foundations before pouring the concrete. Cure the foundations for 5 days before installing any structures.

Contractor shall remove and dispose of all excess material from site.

D Measurement
The department will measure Concrete Foundation Advanced Crossroad Name Signs Special Sign Support as each individual foundation, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.7011	Concrete Foundation Advanced Crossroad Name Signs Special Sign Support	Each

Payment is full compensation for providing all materials including necessary hardware, anchor bolts, forms, bar steel reinforcement, and concrete; and for excavating, backfilling, and disposing of surplus materials.

120. Inlet Covers Type 57, Item SPV.0060.8004.

A Description
The work under these items shall be in accordance to the requirements of standard spec 611 and the details as shown on the plans.

B (Vacant)

C (Vacant)

D Measurement
The department will measure Inlet Covers (Type) by each individual unit, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.8004	Inlet Covers Type 57	Each

Payment is full compensation according to standard spec 611.5.

121. Pipe Connection to Existing Structure, Item SPV.0060.8015.

A Description
This special provision describes connecting new storm sewer pipe to existing structure.

B Materials
Conform to standard spec 608.2 and standard spec 611.2

C Construction
Conform to standard spec 607.3 and standard spec 611.3

D Measurement
The department will measure Pipe Connection to Existing Structure by each individual lateral connected, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.8015	Pipe Connection to Existing Structure	Each

Payment is full compensation for performing all work; excavation, backfilling, furnishing, masonry and fittings; disposing of surplus material, coring holes in existing structure to connect new pipe; and installing all materials, couplings, concrete collars, and pipe.

122. Sedimentation Basin, Item SPV.0060.8017.

A Description
Design, supply and maintain a sedimentation basin used to de-water the storm sewer or culvert pipes.

B (Vacant)

C Construction
Design a sedimentation basin that is able to filter the contaminated water prior to discharging it back into the adjacent drainage way conforming to Wisconsin DNR technical standard guidelines for sedimentation basin design. Submit sedimentation basin design to the engineer for approval prior to its construction. Maintain the sedimentation basin at regular intervals or as directed by the engineer.

D Measurement
The department will measure Sedimentation Basin as each individual basin, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.8017	Sedimentation Basin	Each

Payment is full compensation for design and approval; furnishing and maintaining each basin; for any polymers required to achieve performance standards; and for removal of the basin.

123. Removing Bulkhead, Item SPV.0060.8018.

A Description

This special provision describes removing previously constructed bulkhead as shown in the plans, and as hereinafter provided.

B (Vacant)

C Construction

Carefully remove the bulkhead without damaging the pipe. Replace portion of damaged pipe with similar size and material.

D Measurement

The department will measure Removing Bulkhead by each individual removed bulkhead, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.8018	Removing Bulkhead	Each

Payment is full compensation for furnishing all materials; removing bulkhead, replacing damaged pipe material including concrete collar around the pipe; and excavating and backfilling where necessary.

124. Welding Storm Sewer Covers, Item SPV.0060.8050.

A Description

This work includes welding storm sewer covers at locations as shown on the plan.

B (Vacant)

C Construction

Prior to welding clean out all soil, debris, other accumulated matter, and materials deposited or lodged on the storm sewer structure cover.

Conform to AWA 1.1 “Structural Welding Code – Steel”.

All welding shall be done by skilled, experienced, qualified and state certified operators

Provide welding in such a manner that welding can be grounded off for future access.

D Measurement
The department will measure Welding Storm Sewer Covers as each individual unit, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.8050	Welding Storm Sewer Covers	Each

Payment is full compensation for cleaning covers, and for welding including welding materials.

125. Remove and Cap Existing Drainage Storm Sewer Structure, Item SPV.0060.8061.

A Description
This item describes remove and cap existing drainage Storm Sewer Structure with concrete and necessary reinforcement, including required excavating and backfilling in accordance to construction details shown on plan, the standard specifications, and as hereinafter provided.

B Materials
Furnish materials conforming to standard spec 501 for concrete, standard spec 505 for reinforcement, and standard spec 506 for structural steel and miscellaneous metals.

Furnish grade A concrete with Type II cement conforming to standard spec 501.2. Furnish ASTM 617 Grade 60 reinforcing steel.

Furnish plastic waterstop conforming to standard spec 502.3.6.4.

Furnish support assemblies conforming to standard spec 611.2.2.

C Construction
Excavate and backfill as specified for excavation for Storm Sewer Structures in standard spec 206, except do not backfill concrete brick until at least 3 days after completing the unit. Use granular backfill material for backfilling.

Construct concrete as specified in standard spec 501, and as specified for culverts and retaining walls in standard spec 504.

Construct concrete brick as specified in standard spec 519.

Construct structural steel and miscellaneous metals as specified for steel bridges in standard spec 506.

Cure the concrete by one of the methods specified in standard spec 502.3.8 for curing concrete in subStorm Sewer Structure units.

Construct the masonry and install waterstop material to provide a watertight joint between new masonry cap and existing manhole.

Clean and remove all materials and debris deposited or lodged in the manhole due to the contractor's operations during construction.

D Measurement
The department will measure Remove and Cap Existing Drainage Storm Sewer Structure as each individual unit of work, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.8061	Remove and Cap Existing Drainage Storm Sewer Structure	Each

Payment for the Remove and Cap Existing Drainage Storm Sewer Structure is full compensation for providing all materials, including all masonry; for furnishing all excavating; for sheeting and shoring; for backfilling; for providing granular backfill material; for control of water; for temporary support and protection of existing utilities to construction; for removing sheeting and shoring; disposing of surplus material, and for cleaning out and restoring the work site. Granular backfill material required for backfilling is incidental to the work.

126. Truck Mounted Attenuator, Item SPV.0075.0010.

A Description
This special provision describes furnishing, maintaining and operating a Truck Mounted Attenuator (TMA) for protection and to protect the department personnel, traveling public and equipment during moving operations and short term stationary work in a closed lane of traffic when deemed necessary by the engineer.

B Materials

B.1 General

The TMA shall be a model that has been approved by the Federal Highway Administration for meeting NCHRP 350 Test Level 3 Crashworthiness. The attenuator shall be mounted to a suitable truck in a manner meeting the manufacturer's specifications.

C Construction

Place the TMA in the closed lane in advance of the equipment and personnel, located as recommended by the manufacturer and approved by the engineer. If the TMA is not available when the work requires its use, postpone the work until the TMA is available.

If utilized in a mobile operation, the TMA support vehicle shall shadow the mobile operation and maintain a consistent distance from the mobile operation as recommended by the manufacturer. The TMA operator shall remain with the vehicle at all times during mobile operations.

D Measurement

The department will measure Truck Mounted Attenuator by the hour(s), acceptably completed, and as directed by the engineer. The number of hours measured shall be any hours the TMA and operator are used in mobile operations or short term stationary work.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0075.0010	Truck Mounted Attenuator	HR

Payment is full compensation for furnishing, maintaining and operating the TMA and its operator.

127. Drilled Foundation Shaft Obstructions, Item SPV.0075.4200.

A Description

A.1 General

The work included herein consists of removing, drilling, or coring through unknown, and unidentified, man-made subsurface obstructions when encountered during construction of drilled foundation shafts.

A.2 Definitions

Surface obstructions are defined as any objects, man-made or naturally deposited, encountered within 6 feet of the ground surface. Subsurface obstructions are defined as man-made obstructions that are encountered by the drilling equipment at a depth greater than 6 feet below the ground surface. Obstructions include only man-made materials, such as old concrete foundations or abandoned utilities. Known obstructions are man-made obstructions that are shown or identified in the plans. Unknown obstructions are man-made obstructions that are not shown or identified in the plans. Naturally occurring

deposits such as rock, boulders, cobbles, and nested cobbles, are not considered obstructions and therefore are not applicable to the provision of this pay item.

B (Vacant)

C Construction

Remove surface and subsurface obstructions at drilled shaft locations. Special tools and/or procedures shall be used when the contractor cannot advance the hole more than 12 inches in 60 minutes using conventional rock augers fitted with teeth, drilling buckets, or under reaming tools operating at maximum power, torque, and down thrust. Special procedures and/or tools may be required but are not limited to chisels, breakers, core barrels, air hammer tools, and hand excavation. Other methods for obstruction removal can be employed to aid in the removal if acceptable to the engineer. Blasting is not permitted.

When an unknown subsurface obstruction is encountered, notify the engineer prior to beginning any work to remove the obstruction.

D Measurement

The department will measure Drilled Foundation Shaft Obstructions by the hour for each hour the contractor actively spends removing or coring through unknown man-made subsurface obstructions. A quantity of one hour will be paid upon the determination that a subsurface obstruction is encountered based on lack of hole advancement with conventional tools as set forth in this specification. Upon removal of the unknown man-made subsurface obstruction, portions of the final hour measured will be rounded up to the next whole hour. Down time spent planning for subsurface obstruction removal or delays caused by the mobilization of special equipment and tools not readily available at the site will not be measured for payment.

Measurement Example		Paid Obstruction Hours
1	Drilling encounters possible obstruction. Contractor notifies engineer. Start clock.	0.00
2	Conventional drilling equipment does not advance 1 foot after attempting to do so for at least 60 minutes.	1.00
3	Contractor resumes work clearing obstruction the following day. Assume the obstruction is cleared in aggregate total of 1 hour and 15 minutes of time. Obstruction is identified to be a previously unknown and unidentified man-made obstruction.	2.00

Only unknown (not identified in the plans), man-made subsurface obstructions, will be measured for payment. Work to clear and remove surface obstructions, known obstructions identified on the plans, and any natural deposits (rock, boulders, cobbles, and nested cobbles) will not be measured separately for payment and shall be included in the applicable item for Drilled Foundation Shaft 34.75-Inch included in the contract.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0075.4200	Drilled Foundation Shaft Obstructions	HRS

Payment is full compensation for removal of unknown, man-made subsurface obstructions; and for furnishing all materials, labor, equipment, additional concrete, and incidentals necessary to complete the work.

128. Seeding Native Seed Butterfly Mix, Item SPV.0085.0010.

A Description

This special provision describes preparing seed beds and furnishing and sowing the required seed on slopes, appurtenances, and other areas, and on borrow pits and material disposal sites as shown on the plans.

B Materials

This work shall be in accordance to the pertinent provisions of standard spec 630.2 and as hereinafter provided.

Amend table of Native Seed Mixtures in standard spec 630.2.1.5.1.1.1 with the following:

Seeding Native Seed Butterfly Mix

Common Name	Botanical Name	Mixture %
Forbs		
Butterfly Weed	*Asclepias tuberosa*	7
Common Milkweed	*Asclepias syriaca*	10
New England Aster	*Aster novae-angliae*	2
Rough Blazingstar	*Liatris aspera*	2
Showy Goldenrod	*Solidago speciosa*	2
Wild White Indigo *	*Baptisia leucantha*	2
Pale Purple Coneflower	*Echinacea pallida*	2
Common Boneset	*Eupatorium perfolium*	2
Showy Tick Trefoil *	*Desmodium Canadense*	3
Purple Prairie Clover *	*Dalea purpurea*	3
	total	35%
Grasses		
Sideoats Gramma	*Bouteloua curtipendula*	16
Canada Wildrye	*Elymus Canadensis*	16
Little Bluestem	*Schizachyrium scoparium*	16
Indiangrass	*Sorgatrum nutans*	17
	total	65%

*Legumes

Amend standard spec 630.2.1.5.1.3 with the following:

If seeding bare soil with Seeding Native Seed Butterfly Mix plant a seeding nurse crop as specified in standard spec 630.2.1.5.1.4.

C Construction

This work shall be in accordance to the pertinent provisions of standard spec 630.3, as shown on the plans, and as hereinafter provided.

Amend standard spec 630.3.3.5.1 with the following:

Seed Native Seed Butterfly Mix at 0.4 pounds

Amend standard spec 630.3.3.6 (1) with the following:

During the first two growing seasons after planting Seeding Native Seed Butterfly Mix, mow as the engineer directs.

(2) During the first two growing season after planting Seeding Native Seed Butterfly Mix, eradiate the following species:

Phagmites or Common Reed	Phragmites australis

(3) Inspect the site to determine if any existing unwanted species are present and mark the areas of plant eradication. Areas marked by the contractor will be inspected by the department. Make adjustments as directed by the engineer. Eradicate the invasive species within all areas defined by the engineer.

Seeded areas shall be kept free of unwanted species until the nurse crop has germinated and reached a minimum height of 4 inches.

D Measurement

The department will measure Seeding Native Seed Butterfly Mix by the pound, acceptably completed. The department will measure quantities based on net weights of seed shipments, or on quantities weighed on department-approved scales the contractor furnishes. The department will make deductions for all quantities wasted or not actually incorporated in the work according to the contract. The department will determine the equivalent pounds of seed furnished and applied by dividing the actual pounds of seed applied by the sum of the unadjusted and adjusted percentages of the various species in the seed mixture sown. The department will use the unadjusted and adjusted percentages determined in standard spec 630.3.3.5.1.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0085.0010	Seeding Native Seed Butterfly Mix	LB

Payment is full compensation for providing, handling, and storing all seed; for providing the required culture and inoculating seed as specified; and for preparing the seed bed, sowing, covering and firming the seed.

129. Pavement Marking Grooved Preformed Thermoplastic Stop Line 18-Inch, Item SPV.0090.0010; Pavement Marking Grooved Preformed Thermoplastic Crosswalk 6-Inch, Item SPV.0090.0011.

A Description

This special provision describes grooving the pavement surface, and furnishing and installing preformed thermoplastic pavement marking as shown on the plans, in accordance to standard spec 647, and as hereinafter provided.

B Materials

Furnish preformed thermoplastic pavement marking and sealant material, if required, from the department's approved products list.

C Construction

C.1 General

For quality assurance, provide the engineer and the region's Marking Section evidence of manufacturer training in the proper placement and installation of preformed thermoplastic pavement marking.

Plane the grooved lines in accordance to the plan details. Use grooving equipment with a free-floating, independent cutting or grinding head. Plane a minimum number of passes to create a smooth groove.

C.2 Groove Depth

Cut the groove to a depth of 120 mils ±10 mils deeper than the thermoplastic thickness, from the pavement surface or, if tined, from the high point of the tined surface. Measure depth using a straightedge placed perpendicular to the groove. The department may periodically check groove depths.

C.3 Groove Width – Linear Markings

Cut the groove 1-inch wider than the width of the thermoplastic.

C.4 Groove Position

Position the groove edge in accordance to the plan details.

C.4.1 Linear Marking

Groove at a minimum of 4-inches, but not greater than, 12-inches from both ends of the line segment. Achieve straight alignment with the grooving equipment.

C.4.2 Special Marking
Groove a box around the special marking up to 4 inches from the perimeter of the special marking.

C.5 Groove Cleaning
C.5.1 Concrete
Cooling the cutting head with water may be necessary for some applications and equipment. If cooling water is necessary, flush the groove immediately with water after cutting to remove any build-up of cement dust and water slurry. If this is not done, the slurry may harden in the groove.

If water is used in the grooving process, allow the groove to dry a minimum of 24 hours after groove cleaning, after removal of excess water, and prior to pavement marking application. Clean and dry the groove for proper application of the sealant, and placement of the pavement marking. Use a high-pressure air blower with at least 185 ft^3/min air flow and 90 psi air pressure to clean the groove; use of the air blower does not decrease the amount of time required for the groove to dry.

C.5.2 New Asphalt
Groove pavement 10 or more days after paving. Use a high-pressure air blower with at least 185 ft^3/min air flow and 90 psi air pressure to clean the groove.

C.5.3 Existing Asphalt
Check for structural integrity in supporting grooving operations. If the structural integrity of the asphalt pavement is inadequate to support grooving operations, immediately notify the engineer.

C.5.4 Asphalt
Use a high-pressure air blower with at least 185 ft^3/min air flow and 90 psi air pressure to clean the groove.

C.6 Preformed Thermoplastic Application
Preheat the surface if necessary based on manufacturer's recommendation.

Application of the preformed thermoplastic in the groove without sealant will be as follows:

- May 1 to September 30, both dates inclusive – the Southeast Region and the ozone non-attainment or maintenance Northeast Region counties of Sheboygan, Manitowoc, Kewaunee, and Door.
- June 1 to August 31 – the Southwest Region, and the Northeast, North Central, and Northwest Regions except for the ozone non-attainment or maintenance Northeast Region counties of Sheboygan, Manitowoc, Kewaunee, and Door.

Application of the preformed thermoplastic in the groove with sealant materials will be as follows:

- October 1 to April 30, both dates inclusive – the Southeast Region and the ozone non-attainment or maintenance Northeast Region counties of Sheboygan, Manitowoc, Kewaunee, and Door.
- September 1 to May 31, both dates inclusive – the Southwest Region and the Northeast, North Central, and Northwest Regions, except for the ozone non-attainment or maintenance Northeast Region counties of Sheboygan, Manitowoc, Kewaunee, and Door.

The sealant must be wet.

D Measurement

The department will measure Pavement Marking Grooved Preformed Thermoplastic (Type) (Inch) in length by the linear foot of tape placed, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.0010	Pavement Marking Grooved Preformed Thermoplastic Stop Line 18-Inch	LF
SPV.0090.0011	Pavement Marking Grooved Preformed Thermoplastic Crosswalk 6-Inch	LF

Payment is full compensation for cleaning and preparing the pavement surface, and for furnishing and installing the material.

130. Pavement Marking Grooved Preformed Plastic Tape 4-Inch, Item SPV.0090.0013.

A Description

This special provision describes furnishing, grooving, and installing preformed plastic pavement marking tape as shown on the plans, in accordance with standard spec 646, and as hereinafter provided.

B Materials

Furnish grooved preformed plastic pavement marking tape and adhesive material, if required, from the department's approved products list.

Furnish a copy of the manufacturer's recommendations to the engineer before preparing the pavement marking grooves.

C Construction

C.1 General

For quality assurance, provide the project engineer and the region's Marking Section evidence of manufacturer training in the proper placement and installation of pavement marking tape.

Plane the grooved lines in accordance to details in the plan. Use grooving equipment with a free-floating, independent cutting or grinding head. Plane a minimum number of passes to create a smooth groove.

C.2 Groove Depth

Cut the groove to a depth of 120 mils ±10 mils from the pavement surface or, if tined, from the high point of the tined surface. Measure depth using a straightedge placed perpendicular to the groove. The department may periodically check groove depths.

C.3 Groove Width – Longitudinal Markings

Cut the groove one-inch wider than the width of the tape.

C.4 Groove Position

Position the groove edge in accordance to plan details. Groove a minimum of 4 inches, but not greater than, 12 inches from both ends of the tape segment. Achieve straight alignment with the grooving equipment.

C.5 Groove Cleaning

C.5.1 Concrete

Cooling the cutting head with water may be necessary for some applications and equipment. If cooling water is necessary, flush the groove immediately with water after cutting to remove any build-up of cement dust and water slurry. If this is not done, the slurry may harden in the groove.

If water is used in the grooving process, allow the groove to dry a minimum of 24 hours after groove cleaning, after removal of excess water, and prior to pavement marking application. Clean and dry the groove for proper application of the adhesive, and placement of the pavement marking. Use a high-pressure air blower with at least 185 ft^3/min air flow and 90 psi air pressure to clean the groove; use of the air blower does not decrease the amount of time required for the groove to dry.

C.5.2 New Asphalt

Groove pavement 5 or more days after paving.

If opening to traffic an asphalt lane that is not grooved, place temporary pavement marking. For asphalt lanes not open to traffic, temporary pavement marking is not required.

Use a high-pressure air blower with at least 185 ft^3/min air flow and 90 psi air pressure to clean the groove.

C.5.3 Existing Asphalt
Check for structural integrity in supporting grooving operations. If the structural integrity of the asphalt pavement is inadequate to support grooving operations, immediately notify the engineer.

Use a high-pressure air blower with at least 185 ft^3/min air flow and 90 psi air pressure to clean the groove.

C.6 Tape Application
Apply the tape when both the air and surface temperature are 40 degrees F and rising.

Apply tape in the groove as per manufacturer's recommendations. If manufacturer's recommendations require surface preparation adhesive, apply an adhesive with lower than 91g/l VOC during the following period of time due to Volatile Organic Compound Limitations:

May 1 to September 30, both dates inclusive – the Southeast Region and the ozone non-attainment Northeast Region counties of Sheboygan, Manitowoc, and Kewaunee.

Use any adhesive from the preformed plastic approved products list in the remainder counties and for the remainder of the year.

The adhesive must be dry (feels tacky but is no longer in liquid form) and have a matte finish rather than a glossy wet appearance.

Tamp the pavement marking tape with a tamper cart roller cut to fit the groove. Tamp three complete cycles with grooved modified equipment.

D Measurement
The department will measure Pavement Marking Grooved Preformed Plastic Tape (Width) in length by the linear foot of tape placed, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.0013	Pavement Marking Grooved Preformed Plastic Tape 4-Inch	LF

Payment is full compensation for cleaning and preparing the pavement surface; furnishing and installing the material; furnishing, placing, and removing temporary pavement marking, if necessary.

131. Low Profile Concrete Barrier, Item SPV.0090.0014; Low Profile Concrete Barrier End Section, Item SPV.0090.0015.

A Description
Construct Low Profile Concrete Barrier and Low Profile Concrete Barrier End Section in accordance to standard spec 603, details shown in the plans and as hereinafter provided.

B Materials
Add the following to standard spec 603.2:

Concrete minimum strength to be 4000 psi.

Delete paragraph (4) in standard spec 603.2.

C Construction
C.1 General
Delete paragraph (1) in standard spec 603.3.1.1.

Add the following to standard spec 603.3.1.1:

Construct the Low Profile Concrete Barrier and Low Profile Concrete Barrier End Section to present a smooth, uniform appearance in its final position conforming to the horizontal and vertical lines shown on the plans or ordered by the engineer, and be free of lumps, sags or other irregularities. The top and exposed faces of the barrier shall conform to standard spec 603.3.1.5.

If constructed by using a slip form machine or similar type equipment, feed concrete into the slip form machine at a uniform rate. Operate the machine under sufficient uniform restraint to forward motion to produce a well compacted mass of concrete free from surface pits larger than one inch in diameter and requiring no further finishing, other than that conforming to standard spec 603.3.1.6.

If constructed by using a slip form machine or similar type equipment, the concrete barrier shall be of well-compacted, dense concrete, and the exposed surfaces conform to standard spec 603.3.1.7. If requested by the engineer, evidence of successful operation of the slip form machine or other equipment may be required.

Utilize concrete of such consistency that, after slip forming, it will maintain the shape of the barrier without support.

C.2 Anchor Dowels
Replace standard spec 603.3.1.2 with the following:

Install anchor dowels at the locations, spacing, and depth shown in the plans. Drilled holes are not allowed.

C.3 Joints
Add the following to standard spec 603.3.1.3:

Construct contraction joints at the locations, spacing, and depth shown in the plans.

C.4 Temporary Precast Barrier

Delete standard spec 603.3.2.

D Measurement
Replace standard spec 603.4 with the following:

The department will measure Low Profile Concrete Barrier and Low Profile Concrete Barrier End Section by the linear foot, acceptably completed, measured along the base of the concrete barrier.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.0014	Low Profile Concrete Barrier	LF
SPV.0090.0015	Low Profile Concrete Barrier End Section	LF

Payment for Low Profile Concrete Barrier and Low Profile Concrete Barrier End Section is full compensation for excavating and preparing the foundation; for providing all materials shown in the plans, including concrete, expansion joints, reinforcement, concrete, and extruded polystyrene; for furnishing all joints as shown in the plans; for disposing of excess material; and for placing, finishing, protecting, and curing concrete.

132. Fence Temporary Left In Place, Item SPV.0090.0016.

A Description
This special provision describes furnishing, erecting and maintaining temporary chain link fence including gates, as shown on the plans and as directed by the engineer, in accordance to standard spec 616, and as hereinafter provided. The intent of this specification is to provide a secure enclosure.

B Materials
Fencing parts furnished do not have to be new materials. Used, re-rolled and open seam materials will be permitted. Gates shall be a minimum of 12 feet wide.

No specific metallic coating will be required for the chain link fencing materials. Materials furnished do not have to be of the same type. Fence height shall be a minimum of 6 feet.

The engineer may reject fencing materials which, in the engineer's opinion, are too damaged or misaligned to provide acceptable closure.

C Construction
Fence posts may be driven into the ground or set in augured holes, backfilled and compacted. Minimum embedment shall be 4 feet. In paved areas fence posts shall be fastened to either temporary concrete barrier or the pavement by methods ensuring a secure enclosure. Where fence is installed in areas that are not to be disturbed by subsequent construction activities, the disturbed area shall be restored in kind at no additional cost to the department.

D Measurement
The department will measure Fence Temporary Left In Place by the linear foot from end posts, center to center, along the ground line, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.0016	Fence Temporary Left In Place	LF

Payment is full compensation for furnishing all materials; erecting posts, gates and fence; maintaining fencing; and for restoring disturbed areas.

133. Concrete Barrier Temporary Precast Left In Place, Item SPV.0090.0017.

A Description
This special provision describes leaving in place temporary precast reinforced concrete barrier conforming to the shape, dimensions, and details the plans show and in accordance to the pertinent provisions of standard spec 603, these special provisions, and as hereinafter provided.

Concrete Barrier Temporary Precast Contractor Left In Place becomes property of the department after final acceptance by the engineer.

B (Vacant)

C (Vacant)

D Measurement
The department will measure Concrete Barrier Temporary Precast Left in Place by the linear foot, acceptably completed, measured along the base of the barrier after final installation in its left-in-place location.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.0017	Concrete Barrier Temporary Precast Left in Place	LF

Payment is full compensation for leaving concrete barrier temporary precast and transitions between temporary and permanent barriers on the project site.

Initial delivery, subsequent deliveries, installations and anchoring will be paid for separately under the bid items provided for in the contract.

134. Removing Wrought Iron Fence, Item SPV.0090.0020.

A Description
This special provision describes removing existing wrought iron fence and its foundations, concrete bases, and brick fence posts in accordance to the pertinent provisions of standard spec 204 and as hereinafter provided.

B (Vacant)

C Construction
Remove all materials below existing ground to an elevation of two feet below existing subgrade, or as specified by the engineer. Dispose of all removed material at an offsite location.

Carefully remove wrought iron fence, brick fence posts, and concrete foundations. Avoid damaging any utilities during construction operations. Complete all necessary operations to remove the fence foundations. Backfill all trenches, holes, and pits with suitable fill material conforming to standard spec 209.

D Measurement
The department will measure Removing Wrought Iron Fence by the linear foot, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.0020	Removing Wrought Iron Fence	LF

Payment is full compensation for breaking down and removing wrought iron fence as outlined in this specification; for removing brick fence posts and foundations; for furnishing all excavating; for placing and compacting backfill material; for disposing of all materials; and for repairing all damage.

135. Fence Decorative Bridge, Item SPV.0090.4300; Fence Decorative Wall, Item SPV.0090.4310.

A Description

Fabricate, galvanize, paint, deliver and install decorative fencing on bridge superstructures and retaining walls.

B Materials

B.1 General

All materials shall meet the requirements as shown on the plans and the applicable provisions of the standard specifications as follows:

- Structural Steel: standard spec 506.2.2
- Steel Mesh: standard spec 505.2.5
- Painting: standard spec 517.2 and 517.3

After fabrication and prior to bolting and assembling the fence components, steel shall be blast cleaned per SSPC-SP 6 and galvanized according to ASTM A 123. All bolts, nuts and washers shall be supplied as factory galvanized according to ASTM A 153. Repair zinc coating damaged during fence assemblage as specified in standard spec 635.3.4. Grind the welded joints to a smooth finish where shown in the plans.

Steel preparation includes the chamfering of sharp edges. All sharp edges shall be flattened by a single pass of a grinder or suitable device along the sharp edge. Condition any thermal cut edges before blast cleaning by shallow grinding or other cleaning to remove any hardened surface layer. Remove all evident steel defects exposed in accordance to AASHTO M 160 prior to blast cleaning.

The decorative silhouette inset plates shown on the plans shall be fabricated as indicated in the plans. The decorative silhouette shall be electro galvanized in accordance to ASTM A 591-01 (0.08 oz/square foot/surface) and then painted with an approved tie and topcoat as given in this special provision. The top coat shall be painted the same color as the rest of the decorative fencing. Electronic files of the decorative silhouette patterns are available from Wisconsin Department of Transportation, Jeff Bohen, P.E., 141 NW Barstow Street, Waukesha, Wisconsin 53187, (262) 548-6459

The fence fabric shall consist of 8 GA. 2 inch by 2 inch welded wire mesh galvanized to ASTM A 123 and then painted with a pre-approved tie and top coat as given in this special provision. The vertical wires of the mesh shall be placed on the inside (Pedestrian/Traffic side) face of the fence.

B.2 Painting

All galvanizing surfaces shall be cleaned per SSPC-SP1 to remove, chlorides, sulfates zinc salts, oil, dirt, organic matter and other contaminants. The cleaned surface should then be Brush Blast Cleaned per SSPC-SP7 to create a slight angular surface profile

(1.0 – 1.5 mils suggested) for adhesion. Blasting should not fracture the galvanized finish or remove any dry film thickness.

After cleaning provide a tie coat from an approved coating system that is specifically intended to be used on a galvanized surface. The tie coat shall etch the galvanized rail and prepare the surface for the top coat. Apply a top coat matching the specified color. The tie and top coats should be of contrasting colors. Use a pre-approved top coat that is resistant to the effects of the sun, and is suitable for use in a marine environment. The various decorative fence components shall be painted with the tie and top coats before final assembly of the fence panels. Exercise care so as not to damage the painted surface during panel assembly or fence installation.

Use one of the qualified paint sources and products given below. An equivalent system may be used with the written approval of the engineer.

Producer	Coat	Products	Dry Film Minimum Thickness (mils)	Minimum Time Between Coats (hours)
Sherwin Williams 1051 Permeter Drive, Suite 710 Schaumburg, IL 60173 847.330.1562	Tie	Recoatable Epoxy Primer B67-5 Series/B67V5	2.0 to 4.0	6
	Top	Acrolon 218 HS Polyurethane , B65-650	2.0 to 4.0	NA
Carboline 350 Hanley Industrial St. Louis, MO 63144 314.644.1000	Tie	Rustbond Penetrating Sealer FC	1	36
	Top	Carboline 133 LH	4	NA
Wasser Corporation 4118 B Place NW Suite B Aubum, WA 98001	Tie	MC-Ferrox B 100	3.0 to 5.0	8
	Top	MC-Luster 100	2.0 to 4.0	NA

B.2 Color
The finished color for coating system for decorative fencing shall match Federal Color 37038 – Black

C Construction
Provide shop drawings in accordance to the requirements of standard spec 506.3.2. Shop drawings shall contain material sizes and types, weld sizes and locations, and all necessary details, dimensions, and information to allow fabrication of the fence in conformance with the requirements of the contract. Do not begin fabrication prior to shop drawing review and acceptance.

Provide a full sized painted 6-foot by 10-foot test panel for the fence. The test panel shall be ten feet long. The test panel shall be delivered to the job site within 60 days of the award of the contract. Unload and set up test panel in an area designated by the engineer. Do not begin fabrication of fences prior to the test panel acceptance.

During construction and at the time of delivery the engineer shall inspect the frame components. The engineer shall accept the product after the delivery is unloaded on the site. After the product is unloaded, the installation contractor will signify in writing that the fence was received in acceptable condition per the engineer's inspection. Any damage to the fence panels after the acceptable delivery will be the responsibility of the installation contractor.

All welding shall conform to the applicable requirements of standard spec 506. No field welding, field cutting, or drilling will be permitted without the approval of the engineer.

Take special care during construction to minimize the number and size of touch-up spots. Follow the manufacturer's recommendations for damaged area repairs. The engineer must approve the field paint appearance prior to final acceptance.

Provide the engineer with the name, address, and phone number of a representative of the fence fabricator for future coordination.

During handling, protect finish coating from damage. If damaged during handling the fencing may be rejected by the engineer or engineer may direct fabricator that the finish shall be repaired in accordance to the manufacturer's recommendations.

D Measurement

The department will measure Fence Decorative Bridge and Fence Decorative Wall by the linear foot, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.4300	Fence Decorative Bridge	LF
SPV.0090.4310	Fence Decorative Wall	LF

Payment is full compensation for fabricating painting, galvanizing and delivering test panel to site; fabricating, furnishing, delivering and unloading fence panels, lighting access panels, posts; installing fence posts and panels and hardware; and for preparing shop drawings, painting, galvanizing metal fence components.

136. Drilled Foundation Shaft 34.75-Inch, Item SPV.0090.4320.

A Description

This special provision describes installing drilled foundation shafts for bridge foundations as shown on the plans.

A.1 Qualifications of the Contractor

The contractor performing the work described in these special provisions must have drilled foundation shaft project(s) successfully completed within the last 5 years. The contractor must submit a list outlining their experience on at least five projects where they have successfully completed drilled foundation shaft construction, including one project completed within the last 5 years. The project experience must include at least one project completed in soil and groundwater conditions similar to those anticipated for this project. The project experience must include advancing the drilled shafts to a depth of at least 30 feet below the original ground surface. At least one project must show evidence of permanence with a 5-year minimum age. The project experience documentation for each project must include a brief project description, detail the size and length of the shafts, construction methods used during installation, methods used for wall stabilization, local soil conditions, actual construction time and contact information consisting of an individual's name and current phone number. Contacts must be capable of verifying project participation.

The contractor must submit staff experience records of the engineer, drill operators, and on-site supervisors and crew chiefs who will be assigned to the project. The staff records must contain a summary of each individual's experience and it must be complete enough for the engineer to determine whether each individual has satisfied the following qualifications.

The contractor must assign an engineer to supervise the work who has at least eight years of drilled shaft experience and who has completed at least one drilled shaft project. The assigned engineer's project experience must include at least one project completed in soil and groundwater conditions similar to those anticipated for this project. The contractor may not use consultants or manufacturer's representatives in order to meet the requirements of this section. Drill operators, and onsite supervisors and crew chiefs must have a minimum of one-year experience installing drilled shafts with the contractor's organization.

The contractor's qualifications and staff experience records shall be submitted at the preconstruction meeting or 14 calendar days prior to the start of drilled shaft construction, whichever date is earlier. The engineer will accept or reject the contractor's qualifications and staff experience records within 14 calendar days after receipt of the submission. Do not start work on any drilled foundation shafts until acceptance of the contractor's qualifications, staff experience, and drilled shaft installation plan is given by the engineer. The engineer may suspend work if the contractor substitutes unqualified personnel for accepted personnel during construction. If work is suspended due to the substitution of unqualified personnel, the adjustment in contract time resulting from the suspension of work will not be allowed.

B Materials

B.1 General

Concrete, drilling fluid, reinforcement and formwork shall be in accordance to the requirements of QMP Drilled Shafts, standard specifications, as shown on the plans, and as hereinafter provided.

In the event that the provisions of other specification clauses cause ambiguity or conflict with these special provisions, these special provisions shall take precedence unless otherwise accepted by the engineer.

B.2 Equipment

Equipment used for excavation, drilling, and cleaning operations shall utilize a temporary casing, which is installed using a rotary drive or by hydraulic oscillator, powered by the drill rig. The equipment shall have adequate capacity; including power, torque, and down thrust to install full depth temporary casing and excavate a hole to a depth equal to the maximum depth of the drilled shafts shown in the plans plus 15 feet, or plus 20 percent of their maximum depth, whichever is greater. Anticipate and make available at the job site all equipment necessary and essential to penetrate soft and hard soils, as well as cobbles and boulders and unidentified man-made obstructions, during the construction of the drilled shafts.

The equipment must be capable of advancing the temporary casing a minimum of 5-ft ahead of the excavation inside the casing until the shaft tip elevation is reached. No excavation ahead of the casing shall be permitted without the engineer's approval.

The overhead rotary drive equipment shall be capable of installing and extracting the full depth temporary casing by means of rotational or oscillatory motion. Installation or removal of temporary casing by impact driving or vibration is not permitted. Advancing and installing the temporary casing by means of excavation ahead of the casing is not permitted.

Where hard soils, or other material including natural or man-made obstructions are encountered and cannot be drilled using conventional earth or rock augers, drilling buckets, and/or over reaming tools, provide drilling equipment including but not limited to rock core barrels, rock tools, down the hole hammer, chisels, air tools, or any other equipment necessary to advance the drilled shaft excavation to the depth and size as shown on the plans.

When applicable, or required by the engineer, provide equipment that produces a stable slurry suspension, mechanical agitation, and a pipeline or other safe methods of transporting the slurry to the drilled shaft.

B.3 Temporary Casing

Temporary casing shall be steel; rigid, smooth, clean, watertight, and of ample strength to withstand both handling and installation stresses and the pressure of both concrete and the surrounding earth materials. Temporary casing must be of sufficient length to provide temporary casing the full length of excavation for all drilled shafts. Segmented casing, if used, must be segmented using flushed bolted, casing joints. Telescopic casing is not permitted. The diameter of casing shall not be less than the specified size of the drilled shaft. All casing diameters shown on the plans refer to outside diameter, O.D. dimensions.

B.4 Temporary Working Surface

Fill material, if required, to create a working surface for construction can be any suitable material approved by the engineer containing no logs, stumps, brush, perishables, or other materials such as stone or broken concrete that may affect the drilling of the shafts. Material that will remain permanently shall consist only of appropriate embankment fill when placed in association with a roadway, conforming to the requirements of standard spec 207.2.

B.5 Reinforcing Steel and Spacers

Deformed reinforcing bars shall comply with the size, dimension, spacing, and details shown on the plans. In addition, they shall conform to AASHTO M31, Grade 60, and all the pertinent requirements of standard spec 505. Non-corrosive wheel type spacers and boots shall be used to properly position the reinforcing steel. All reinforcing steel shall be 100% wire tied between the vertical reinforcement and ties.

B.6 Crosshole Sonic Logging (CSL) Tubes

Access tubes for CSL testing shall be 2 inches I.D. schedule 40 steel pipe conforming to ASTM A 53, Grade A or B, Type E, F, or S. Pipes shall have a round, regular internal diameter, free of defects or obstructions; including any defect at the pipe joints, to permit the free unobstructed passage of source and receiver probes. Each tube or steel pipe shall be fitted with a watertight shoe onto the bottom and a removable cap at the top. Both, the shoe and cap shall be watertight and free from corrosion. The internal and external faces of the CSL tubes shall be clean to ensure passage of the probes and produce a good bond with the concrete.

C Construction

C.1 Drilled Foundation Shaft Installation Plan

C.1.1 General

Prepare and submit a Drilled Foundation Shaft Installation Plan at the preconstruction meeting or at least 14 calendar days prior to beginning drilled shaft construction, whichever date is earlier. Submit the Drilled Foundation Shaft Installation Plan to the engineer for review. The engineer will accept the plan as submitted or return the plan with requested revisions. The engineer's initial acceptance of the submitted plan is considered preliminary with final acceptance pending the successful completion and acceptance of the Trial Drilled Foundation Shaft included in the contract. Do not start any work on production drilled foundation shaft installations until after the successful

installation of the Trial Drilled Foundation Shaft and the engineer provides final acceptance the Drilled Foundation Shaft Installation Plan. Acceptance of the installation plan does not relieve the contractor of responsibility for successful completion of the drilled foundation shafts.

C.1.2 Subsurface Conditions

The contractor is strongly advised to obtain and review the Geotechnical Exploration and Foundation Evaluation Report for the bridge structure for which the drilled foundation shafts are being constructed. See article "Geotechnical Investigation Information" in these special provisions for information on obtaining geotechnical reports.

C.1.3 Submittals

The submitted Drilled Shaft Installation Plan shall include the following:

a. **Job Site Visit**. Acknowledge that the job site was visited to verify the site conditions with regard to entrance, access, overhead lines, subsurface features, clearing and grubbing, permitting, and collecting all information necessary to plan and execute the installation of the drilled shafts.
b. **Plan to Protect Existing Structures**. Outline the steps to be taken during drilled shaft installation to protect adjacent or nearby structures and utilties.
c. **Details of Environmental Control Procedures**. Provide plan to prevent loss of slurry or concrete into waterways, project areas, or protected areas. Detail method to ensure the compliance with state and federal environmental regulations during drilled shaft construction.
d. **List of Proposed Equipment**. Include details of proposed templates; number and sizes of cranes; number and sizes of drills, include rotary torque, crowd force drills, and maximum drilling depth; diameter, length, and reach of augers, bailing buckets, guide walls, templates, and roller bits; cleaning equipment including cleaning buckets, submersible pumps, or air-lifted pumps; size of de-sanding equipment and slurry pumps; soil/rock-coring sampling equipment; inspecting drilled shaft apparatus; length and diameter of tremie or size of concrete pumps; size, length, and thickness of casings; over reaming equipment; and all relevant equipment necessary to complete the drilled shaft installation. Acceptance of the installation plan by the department does not relieve the contractor responsibility to provide other equipment, if necessary, to achieve satisfactory wall installations meeting the requirements of this special provision.
e. **Details of Sequence of Drilled Shaft Installation and Time for Construction Operations**. Include a layout of the drilled shaft installation sequence. Provide a sequential list of installation steps and a time table of operations for installing full depth temporary casing, sealing casing, excavation and/or drilling time, drilled shaft cleaning, rock coring, drilled shaft inspection, concrete placement. Consider the effect of construction operations of one drilled shaft onto the adjacent drilled shaft(s) and utilities and avoid construction conflicts that will affect the quality or integrity of the completed work. Indicate when and what construction sequence modifications

shall be performed under atypical situations, i.e, weekend or holiday shutdowns, unanticipated shutdowns due to equipment issues, etc.

f. **Proposed Drilled Shaft Installation Procedure(s)**. Provide details of the proposed shaft installation procedures, including coring or drilling boulders, rock, obstructions or steep sloping surfaces, when required, and meeting the minimum installation requirements set forth in subsection C.3. Method for identification of the competent or bearing material before finalizing the excavation. Method for monitoring verticality of the drilled shaft walls during excavation, and details of proposed corrective measures to be implemented for shafts out of tolerance. Details of the methods and means of preventing displacement of the casing and/or drilled shaft during installation.

g. **Details of Slurry Operations.** This is required if slurry is used to stabilize the bottom of the excavation within the temporary casing. Include slurry type, methods to mix, circulation, de-sanding, and test the slurry to comply with these special provisions.

h. **Inspection and Cleaning**. Methods to clean and inspect the drilled shaft excavation prior to reinforcement placement.

i. **Crosshole Sonic Logging (CSL).** Method to install and secure the CSL pipes to the reinforcing cage or steel core, along with the proposed selection of pipe and size.

j. **Details of Reinforcement Steel Placement During Construction**. Include methods to ensure cage centering and cover; proper cage orientation, cage integrity while lifted during placement, number of cranes, number of lift points, and number of spreader bars; number and location of bottom and side spacers; cage support; and tie downs during concrete placement.

k. **Concrete Placement Plan**. The purpose of the Concrete Placement Plan is to ensure that a sufficient quantity of concrete is at the job site or in transit to the job site so that the entire pour can be done without delay. Include location of the concrete plant, number of trucks, estimated delivery times, estimated time between trucks, and number of trucks at the site before placement begins. Indicate the use of tremie or concrete pump lines and details of the seal to be used at the bottom end of the tremie or concrete pump line. Breakdowns of concrete plants, trucks, or traffic problems shall be considered under this Concrete Placement Plan. The contractor shall be aware of, and account for, batch, travel, and concrete placement times. Include an estimate of the concrete placement time per drilled shaft. When applicable, detail excavation to grade and finishing of the drilled shafts.

l. **Casing Removal**. Include the details and means by which the contractor intends to remove full depth temporary casings and provide information about staged temporary casing removal when applicable.

m. **Methods of Handling and Disposal of Spoil Excavation, Waste Slurry, Waste Concrete, and Drilled Shaft Cutoffs**. Present sufficient details to the engineer to evaluate the adequacy and compliance of the contractor's methods of disposal with the standard specifications, including all related environmental permits and local regulations.

n. **Other Information** requested on the plans or by the engineer.

C.1.4 Acceptance

The department will evaluate the Drilled Foundation Shaft Installation Plan for conformance with the requirements of these special provisions. Within 14 calendar days after receipt of the Drilled Foundation Shaft Installation Plan, the engineer will notify the contractor of the preliminary acceptance of the plan, or if additional information and/or changes are required. Any unacceptable part of the Installation Plan will require resubmission. The contractor must resubmit the Drilled Foundation Shaft Installation Plan for evaluation and review with the necessary changes or additional information provided. The engineer will provide a written notice of preliminary acceptance or rejection of contractor's resubmitted Drilled Foundation Shaft Installation Plan within 14 calendar days after its receipt. The engineer will provide final acceptance of the Drilled Foundation Shaft Installation Plan after the successful completion of the Trial Drilled Foundation Shaft and satisfactory drilled foundation shaft installation performance is demonstrated in the field.

After assessment or reassessment of the Drilled Foundation Shaft Installation Plan has been made and the engineer has granted preliminary acceptance, no changes to the plan can be made without written consent of the engineer.

C.2 Trial Drilled Foundation Shaft

After the Drilled Foundation Shaft Installation Plan has been preliminarily accepted, construct a non-production trial drilled foundation shaft using the same crews and equipment that will be performing the drilled foundation production work. Construct in accordance to the Trial Drilled Foundation Shaft special provision and adhere to and demonstrate the adequacy of the accepted Drilled Foundation Shaft Installation Plan.

Construction of the Trial Drilled Foundation Shaft will be used to determine if the contractor's methods, equipment, personnel, and proposed procedures are effective to produce stable drilled shaft excavations and drilled foundation shafts that meet the requirements of these special provisions. CSL tests may be performed by the engineer, as part of the evaluation of the trial shaft. With approval of the engineer, revise construction methods and equipment as necessary during this stage or at any time during the installation of production shafts to satisfactorily complete the drilled foundation shafts in accordance to these special provisions.

In the event the contractor fails to demonstrate the adequacy of the drilled foundation shaft installation procedure(s) or equipment during construction of the Trial Drilled Foundation Shaft, the engineer will require appropriate modifications as may be necessary to produce acceptable results. Comply to satisfactorily demonstrate the adequacy of the proposed method(s) or equipment, or construct additional trail drilled foundation shafts as indicated by the engineer at no additional cost to the department.

C.3 Drilled Shaft Installation

C.3.1 General

Carry out the work in accordance to the accepted Drilled Foundation Shaft Installation Plan and as demonstrated during installation of the Trial Drilled Foundation Shaft. The resulting installation plan shall include length of full depth temporary casing, details of the constituent materials of any drilling fluid or means used for stabilization of the bottom of the excavation, the method of inspection, details of the concrete design mix, concreting method, the anticipated time to complete one shaft, and the pattern of construction.

Ensure that damage does not occur to the completed shafts as a result of work on adjacent shafts. Submit to the engineer a drilled shaft installation sequence. The proposed sequence and timing of shaft installation shall be such that the installation work will not cause any damage to adjacent shafts. The shaft installation shall not commence until acceptance of the engineer has been obtained.

C.3.2 Temporary Working Surface

Use a temporary working surface to provide a level surface at the top of shafts for drilling where needed.

C.3.3 Forcible Correction

Where shafts have not been positioned within the specified limits no method of forcible correction will be permitted.

C.3.4 Records

Keep a work record of all shafts installed. Give a copy of each day's record to the engineer within 24 hours of that day's work being completed. The engineer will review and agree to the daily record form format before drilled shaft work commences. Incorporate any comments by the engineer into the record form. Note all unexpected drilling or installation conditions in the records.

C.3.5 Methods of Drilled Shaft Installation

C.3.5.1 General

Full length temporary casing with the use of water or slurry inside the temporary casing, is required for the installation of all drilled shafts on the project. The use of permanent casing method will not be permitted unless authorized by the engineer. The use of slurry without casing is not permitted. Full depth temporary casing shall be installed using overhead rotary drive equipment or by using hydraulic oscillating equipment specifically intended for temporary casing installation and extraction. Installation of full depth temporary casing by means of driving or vibrating is not permitted. Advancing and installing casing by means of excavation ahead of the casing is not permitted. During temporary casing installation and shaft excavation, the tip of the temporary casing shall be advanced a minimum of 5 feet ahead of the tip of the excavation, until the bottom of the excavation is reached.

After the temporary casing is in place, excavate inside the casing, while keeping the temporary casing full of water or slurry as necessary to stabilize the bottom of the excavation within the casing. Excavate to the planned shaft tip elevation using the wet excavation techniques described below. Clean the bottom of the excavation. Before extracting the temporary casing, ensure that the level of fresh concrete inside the casing is at such level that the pressure of its hydrostatic head displaces up and out the fluid trapped in the annular space between the casing and the drilled shaft wall.

C.3.5.2 Dry Installation Method
The dry method of shaft installation is not permitted on this project.

C.3.5.3 Temporary Casing Installation Method
The temporary casing method of shaft installation consists of supporting the shaft excavation by means of full depth temporary casing that is advanced ahead of the excavation until the drilled shaft tip elevation is reached. Excavate, remove, and clean all accumulated loose material from within the cased excavation before placing the reinforcement cage and the shaft concrete in the wet excavation. Do not place concrete into the wet excavation using free fall. Concrete must be placed under water in wet excavation using proper tremie procedures to direct the concrete under the water inside the shaft excavation and displace the water.

C.3.5.4 Wet Installation Method
The wet installation method consists of drilled shaft installation by means of full depth temporary casing in conjunction with the use of slurry, drilling fluid, or water to maintain stability against heave and blow-in in the bottom of the excavation. Use the wet installation method for all drilled foundation shafts in the contract. When using the wet method below the groundwater table, all drilled shaft operations shall be accomplished while maintaining a positive head of fluid of sufficient depth above the water table to avoid heaving or blow-in of the bottom of the excavation.

C.3.5.5 Permanent Casing Method
Do not use the permanent casing method on this project.

C.3.6 Excavations
C.3.6.1 General
Excavations required for the drilled foundation shafts shall be performed through whatever materials are encountered to the dimensions and elevations shown in the plans, or as directed by the engineer. The excavation and installation method shall be suitable for the intended results and materials encountered. Blasting is not permitted.

Maintain a construction log during the drilled foundation shaft excavation. The construction log will include information such as ground elevation, ground water elevation, sequence number, method of installation, machines and tools employed, drilling fluids employed, drilling times, excavated materials and their particular elevations, soil samples and their particular elevations, and all other information relevant to the excavation process that will assist the engineer in evaluating the foundation.

Information shall also include proposed methods for disposal of excavated material and slurry in accordance to state and local environmental regulations, codes and ordinances, the standard specifications, or as directed by the engineer.

C.3.6.2 Protection of Existing Structures

Take all reasonable precautions to prevent damage to existing structures and utilities. These measures shall include, but are not limited to, subsidence control during installation of temporary casings or excavation inside temporary casings.

Where drilled foundation shafts are to be installed in conjunction with embankment placement, the drilled foundation shafts shall be constructed after placement of the fill, unless otherwise shown in the plans, or accepted by the engineer. If fill is required to be placed after completion of the drilled shafts, the footing cap shall be done, as closely as possible, after the fill is in placed and compacted to final grade leaving only the space necessary for the construction of the cap.

C.3.6.3 Drilled Shaft Excavation

Provide the necessary equipment to remove and dispose of all materials encountered in the drilled shaft excavation to the dimension and elevation shown on the plans, or as directed by the engineer. Contractor's excavation equipment may include but is not limited to earth augers and rotary drills designed to work within full depth temporary casing. Unless otherwise shown on the plans, the drilled shaft excavations shall be vertical bored holes extending from the ground surface down to design tip elevation.

C.3.6.4 Obstructions

Obstructions are defined as man-made objects that when encountered, stop or significantly impede downward progress of the temporary casing installation or excavation to less than 12-inches for 60 minutes or longer under normal applied thrust and torque. Obstructions include man-made objects and may include, but are not limited to old concrete foundations, piling, abandoned utilities or buried pavements. Obstructions are further classified as "known obstructions" which are identified on the plans, and "unknown obstructions" that may be encountered but are not identified on the plans.

Employ special tools and/or procedures as necessary when obstructions are encountered and the contractor cannot advance the excavation more than 12-inches in 60 minutes using conventional rock augers fitted with teeth, drilling buckets, or under reaming tools operating at normal power, torque, and down thrust. Special procedures and tools that may be required include, but are not limited to; chisels, breakers, core barrels, air hammer tools, and hand excavation. Other methods for obstruction removal such as hole diameter increase can be employed to aid in the removal if acceptable to the engineer. Blasting is not permitted.

Natural deposits, including boulders, cobbles, nested cobbles and other deposits may be encountered that impede the installation and advancement of the temporary casing and excavation to less than 12-inches for 60 minutes or longer as noted above for obstructions. Natural deposits, regardless of makeup, depth, configuration, and consistency are not classified as obstructions as defined in the special provision Drilled Foundation Shaft Obstructions included in this contract.

C.3.6.5 Lost Tools

Drilling tools that are lost in the excavation shall not be considered obstructions and shall be promptly removed. All costs due to removal of lost tools shall be borne by the contractor including costs associated with hole degradation during removal operations or time while the hole remains open.

C.3.6.6 Inspections and Cleanliness of Excavation

Provide the details of drilled shaft inspection and cleanliness within the Drilled Foundation Shaft Installation Plan, required by subsection C.1.3 of this specification. Provide equipment and tools for checking the dimensions and alignment of each drilled shaft excavation, and coordinate schedules for inspection of the excavation with the engineer. Determine dimensions, alignment, and final depth of the drilled shafts after final cleaning. When applicable, provide safe access and egress to the engineer for inspection of the walls and bottom of the drilled shaft excavation prior to placement of the rebar cage or steel core section and concrete. After the drilled shaft excavation has been prepared for inspection, notify the engineer. The cleanliness and the bearing surface of the drilled shafts will be evaluated and accepted by the engineer. Unless the engineer specifies otherwise, the contractor's cleaning operation shall be considered sufficient when no more that 50 percent of the bottom area of each shaft has less than 1/2-inch of sediment or debris at the time of hole acceptance prior to steel positioning and concrete placement. The maximum depth of sediment or any debris at any location on the bottom of the shaft shall not exceed 1 1/2-inch.

C.3.6.7 Safety

Do not permit any worker to enter the drilled foundation shaft excavation for any reason unless a suitable casing has been installed, the water level has been lowered and stabilized below the level to be occupied, and suitable safety equipment and procedures have been provided to the personnel entering the excavation which includes OSHA certification for confined-entry-space.

C.3.6.8 Record Information

Provide to the department the drilled shaft excavation records and report any unusual observation to the engineer within 8 hours of discovery. Submit a draft of this form for each completed drilled shaft within 24 hours of shaft completion, and submit the final form within 2 weeks. Submit relevant information on a daily basis, or more frequently when variations occur, or as otherwise required by the engineer.

Report the drilled shaft construction progress in accordance to "Records and Forms" Drilled Shafts: Publication No. FHWA – GEC 010, Section 19.5 and Appendix F, pages F-1 through F-16.

C.3.7 Placement of Reinforcing Steel Cage

Prior to placement of the reinforcing steel and concrete, if slurry fluid was employed during the installation of the drilled shaft, test the slurry for compliance with this specification as described in the QMP, Drilled Shafts special provision. Slurry Tests shall be performed along the shaft and at the bottom of the shaft. Adjust the slurry properties as necessary to meet the specifications.

Concrete or non-corrosive spacers shall be used at sufficient intervals not exceeding 10 feet along the reinforcement cage or the steel core. A minimum of 4 spacers shall be spaced evenly around the circumference of any shaft with a maximum space around the shaft circumference of 30 inches between any spacer (i.e. at any given level a 4-foot diameter shaft shall have 4 spacers). The first spacers shall be placed 1.5 feet from the bottom of the shaft with successive spacers at maximum intervals of 10 feet along the shaft. Spacers shall be of an appropriate diameter wheel to provide minimum clearance shown on the plans between the shaft excavation walls and the steel reinforcement.

C.3.8 Concrete Placement

C.3.8.1 General

Test the concrete delivered to the job site for compliance with the QMP Drill Shafts special provision and these special provisions.

C.3.8.2 Concrete Placement Time

Place concrete within 3 hours after excavation inspection and approval unless otherwise directed by the engineer. If the concrete is not placed within this time frame, the excavation must be re-inspected and accepted by the engineer prior to concrete placement.

C.3.8.3 Concrete Placement by Free Fall

Concrete placement within drilled shafts by free fall is not permitted.

C.3.8.4 Concrete Placement by Tremie Pipes

Use tremie pipes to place the concrete inside the excavation. Keep the discharge end of the tremie a minimum of 7-feet below the level of the fresh concrete already placed inside the excavation to maintain a seal. The concrete shall flow into position by pressure through a steel tremie with a minimum diameter of 10-inches. Seal the bottom of the tremie using one way flap valve, before it is lowered into the wet excavation. If water/slurry enters the tremie pipe after concrete pouring has started, the tremie must be withdrawn, cleaned, resealed, and pouring restarted. If for some reason, the tremie is raised out of the fluid concrete or the concrete inside the drilled shaft drops down contaminating the tremie, completely remove and clean the tremie, then replace the seal at the bottom of the tremie, and lower the tremie back as far below as possible into the already placed concrete.

C.3.8.5 Concrete Placement by Concrete Pumps

Concrete pumps and concrete lines can be used to place concrete in drilled shafts rapidly or to deliver the concrete from a distant location. However, due to the need to disassemble the pump line to allow the removal of casing sections and potential air pockets, disruption in concrete flow, the concrete pump placement directly within the shaft is not permitted on this project. The pump must discharge the concrete into a minimum 10-inch diameter steel tremie with a bottom one way flap valve.

All pump lines and connections shall be watertight and must guide the concrete to the discharge point at the center of the rebar cage or steel core and drilled shaft excavation. The pump line may be flexible; however, inside the shaft minimum 10-inch diameter tremie steel pipe will be used so that it delivers the concrete in uninterrupted manner. Keep the bottom of the tremie or discharge orifice 7-feet below the surface of fluid concrete already placed to avoid sudden jumping of the pump line out of the excavation. Concreting shall continue until over pouring is evident at the top of the drilled shaft and until dark gray concrete (acceptable concrete) can be distinguished from the drilling fluid.

C.3.8.6 Casting Level

Over pour concrete above the top of shaft cut-off level to ensure that all concrete at and below cut-off level is homogeneous and free of laitance and deleterious materials.

C.3.9 Construction Tolerances for Individual Shafts

Drilled foundation shaft excavations or completed drilled foundation shafts constructed out of the tolerance will not be accepted. The contractor is responsible for correcting to the satisfaction of the engineer all unacceptable work. Materials, construction, work, engineering analysis, and redesign necessary to complete corrections to out-of-tolerance excavations or completed drilled shafts shall be furnished to the department without either cost or time extension for the project. Comply with the following construction tolerances:

a. The final, as constructed position of the drilled shaft shall be within a maximum of 2 inches in any direction from the theoretical position shown on the plans, unless otherwise permitted by the engineer prior to construction.
b. The vertical alignment of the drilled shaft excavation shall not vary by more than 1/16 inch per foot from plumb vertical.
c. The diameter of the installed drilled shaft shall not be less than the diameter of the drilled shaft shown on the plans. Any conflicts due to a casing that is greater in diameter than the plan shaft diameter shall be remedied by the contractor. No additional compensation or schedule time shall be granted to the contractor for resolving any conflicts due to oversized casings. Employ equipment and methods of excavation to complete the drilled shaft excavation to a planar bottom, and the cutting edges of the equipment used during the excavation shall be normal to equipment's vertical axis within a tolerance of 3/8-inch per foot of diameter. The bottom of the drilled shaft excavation shall be normal to the axis of the drilled shaft within ¾-inch per foot of drilled shaft diameter.

d. Tolerances outlined in sections a. to c. herein shall be checked and finally met by the contractor prior to placement of the reinforced rebar cage or steel core inside the shaft hole.
e. After the concrete is poured, the top elevation of the installed drilled shaft shall be within 1-inch of the top elevation of the corresponding drilled shaft on the plans, and the top of the reinforcing steel cage shall be within the positional tolerance shown on the plans. The center of the reinforcing cage shall be the center of the drilled shaft.

C.3.10 Non Destructive Testing Program

C.3.10.1 Shaft Integrity Test (PIT)

The Pile Integrity Tester performs low strain integrity testing, alternatively called Sonic Testing, Pulse Echo, or Transient Response. The PIT can detect the presence and location of potentially dangerous defects such as cracks, necking, soil inclusions or voids and can determine pile length. The equipment and technique are well established, and specified by ASTM D5882.

Prior to beginning the PIT test, assure that the concrete top is accessible and cleaned. The test(s) will be performed by the engineer. The engineer will evaluate and analyze the PIT test results within 5 business days and provide the contractor with a response regarding the acceptability of the drilled shaft tested. The test shall be conducted on shafts that at are at least 5 days old so that the concrete has attained minimum compressive strength necessary to perform the test.

C.3.10.2 Crosshole Sonic Logging Test

C.3.10.2.1 General

Crosshole Sonic Logging, (CSL), is a nondestructive testing (NDT) method that measures the time for an ultrasonic pulse to travel from a signal source inside an access tube to a receiver inside another access tube and evaluates the integrity of drilled shafts.

Install access tubes intended for Crosshole Sonic Logging CSL testing. The test(s) will be performed by the engineer. All CSL testing will be completed within ten calendar days of concrete placement.

Prior to beginning the CSL test, ensure that the test probes can pass through and down the tubes to the bottom of every installed tube. If a tube is obstructed, the contractor, at no additional cost to the department, must core a hole within the drilled shaft and near the obstructed tube to the depth as directed by the engineer. The core shall be large enough to accommodate the probe through its full length.

The engineer will evaluate and analyze the CSL test results within 5 business days of their receipt and provide a response regarding the acceptability of the drilled shaft tested. The test shall be performed in accordance to ASTM D6760.

C.3.10.2.2 Installation Requirements

Drilled shafts must be fitted with CSL test tubes to evaluate their integrity as shown on the plans.

Install the access tubes or pipes as nearly parallel and far as possible from the longitudinal bars. The number of tubes to be installed per each drilled shaft diameter is as indicated in the table below:

Drilled Shaft Diameter	Number of CSL Tubes	Tube Spacing
34.75-inches	4 minimum	As shown in plans

Securely attach the tubes to the interior of the reinforcement cage with a minimum concrete cover of three inches. The tubes may be attached to exterior of the cage when accepted by the engineer provided the minimum cover requirement of 3-inches over the tubes shall be maintained. In all cases, the tubes shall be as near to vertical and parallel as possible.

Extend the tubes from the bottom of the drilled shaft to at least 3-feet above the top of the drilled shaft, or 2-feet above the ground surface for shafts with cut-off below the ground surface. The tubes must be watertight and capped to prevent concrete or debris from entering during manipulation of the cage and concreting. Care must be taken during lifting and lowering the steel reinforcement so as not to damage the tubes. Fill the CSL tubes with potable water prior to concrete placement. For production shafts and upon completion of the CSL tests, remove all the water from the access tubes or drilled holes and fill them with an approved grout.

C.3.11 Acceptance for Constructed Drilled Shafts

C.3.11.1 General

Any drilled foundation shafts that are not constructed and installed in accordance to these special provisions will be rejected by the engineer. Rejected shafts shall be replaced or rectified by the contractor using methods and procedures subject to the acceptance of the engineer. If required to rectify rejected shafts, shaft replacement, shaft repair, or the cost of constructing additional shafts, will be at no additional cost to the department and no additional time will be added to the contract

In the event that a shaft or shafts are rejected, work on remaining drilled shafts in the contract cannot continue until the contractor re-visits and re-submits a revised drilled shaft installation plan and the revised plan is accepted by the engineer. The revised plan must address any construction issues that resulted in or contributed to the reason(s) for which the deficient shaft(s) were rejected. No additional time will be added to the contract for the time required to revise and accept the revised drilled shaft installation plan.

C.3.11.2 Based on Specifications

The department will only accept drilled foundation shafts that conform to these special provisions. Drilled foundation shafts and related work constructed in any manner that disregards any specified requirement will not be accepted. This includes:

a. Drilled foundation shaft excavations constructed out-of-tolerance, as specified in this specification. When repair to an out-of-tolerance shaft is possible as determined by the engineer, fix the drilled shaft to meet the tolerances before the contractor is permitted to proceed further with any drilled shaft construction. All repairs must be acceptable to the engineer before the contractor may resume the drilled shaft work.
b. Excavation of a drilled foundation shaft with slurry not conforming to the QMP, Drilled Shafts special provision.
c. Drilled foundation shafts exhibiting cuttings from slurry at the drilled shaft bottom; showing soft, incomplete, or unclean bottoms; or presenting side sloughing and sedimentation at the bottom.
d. Drilled foundation shafts with honeycomb intrusions or concrete in which the fines have been washed out or water channels in concrete.
e. Horizontal discontinuity or necking in the drilled foundation shaft concrete.
f. Quarter-moon-shaped soil intrusions on the sides of a drilled foundation shaft.
g. Folded-in debris inside a drilled foundation shaft.
h. Drilled foundation shafts for which the mix design has been altered without the acceptance of the engineer, including the unauthorized addition of water to a mix design to bring it to a certain slump.
i. Drilled foundation shafts constructed in a manner where concrete placement has failed to meet the required time requirements, placement tolerances, or the methods of installation did not have the engineer's acceptance.
j. Drilled foundation shafts constructed with concrete not meeting the minimum 28-day compressive strength (3500 psi) requirement.

C.3.11.3 Based on the PIT or (CSL) Test

CSL and PIT will be evaluated by the engineer. If the engineer determines that CSL or the PIT testing indicates significant anomalies or defects, the engineer will direct the contractor to core the shaft(s) at the location(s) of the defect or anomaly. The coring shall be a minimum of NX sized double tube core barrel. The engineer will determine the number of cores, length(s), location(s), and testing methodology. If the coring or core sample testing results confirm the presence of significant anomalies or defects, the drilled shaft will be determined to be unacceptable and rejected by the engineer. Upon rejection of the shaft(s), submit a remedial action plan to the engineer for correcting the rejected work. The remedial action plan shall include detailed shaft repair or replacement procedures if necessary and will be subject to acceptance by the engineer. Any modifications to the drilled shaft, load transfer mechanisms, and elements affected by the proposed remedial actions will require calculations and working drawings, and shall be made and stamped by a professional engineer, registered in the state of Wisconsin.

In the event that the engineer directs the contractor to core through the concrete and the coring and associated core sample tests confirm the presence of anomalies or defects, the cost of coring, hole closure, core sample tests, and all labor and materials to perform the accepted remedial actions shall be provided at no additional cost to the department and with no extension of the contract time originally granted.

In the event that the engineer directs the contractor to core through the concrete and the core or core sample tests do not confirm the presence of anomalies or defects, the cost of the coring, hole closure and associated testing shall be borne by the department.

Frequent defects as determined by the engineer will result in a re-evaluation of the contractor's installation procedure and, depending on the frequency and type of defect, the engineer may require the contractor to change or modify his procedure

D Measurement

The department will not measure Drilled Foundation Shaft 34.75-Inch. The number of linear feet of Drilled Foundation Shaft 34.75-Inch of individual shafts acceptably completed will be based on the plan quantity (length) without measurement according to the Pay Plan Quantity article of these special provisions. Longer shafts, larger shaft diameters, additional excavation, and additional concrete placed beyond the limits of the plan dimensions will not be measured for payment unless authorized and agreed to in advance of placement by the engineer.

E Payment

The department will pay for plan quantities or revised plan quantities if agreed to in advance of placement by the engineer, at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.4320	Drilled Foundation Shaft 34.75-Inch	LF

Payment is full compensation for furnishing, installing, and removing full depth temporary casing, guide walls, placing and removing temporary working surfaces, drilling fluids, documentation, clearing or removal of surface obstructions, clearing or removal of known man-made or natural obstructions; drilling the shafts, handling and disposal of the excavated, augered and cored soils, and any drilling fluids; positioning steel, wheel type spacers and boots; furnishing and placing the concrete for the drilled foundation shafts to the dimensions and elevations as shown on the plans, and for installing and closing the crosshole logging tubes.

Reinforcement bars are measured and paid under the bid item Bar Steel Reinforcement HS Bridges.

Removal of unknown man-made subsurface obstructions for Drilled Foundation Shaft 34.75-Inch will be measured and paid for separately under the bid item, Drilled Foundation Shaft Obstructions included in the contract.

137. Ductile Iron (DI), Class 55 Water Main, 16-Inch, Item SPV.0090.5000; Ductile Iron (DI), Class 55 Water Main, 12-Inch, Item SPV.0090.5001.

A Description

This work includes providing and installing ductile iron water main at locations indicated in the plans, conforming to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition and as hereinafter provided.

B Materials

B.1 General

Ductile iron (DI) piping shall be in accordance to AWWA C150, Class 55. Design pipe joint ends for rubber push-on gasket joints, conforming to AWWA C111.

Cast in or stamp on pipe manufacturer's mark, year of production, and "DI' or "DUCTILE.'

Pipe shall be cement mortar lined and have internal and external bituminous coats.

B.2 Fittings

Fittings shall conform to AWWA C110, centrifugally cast in metal or sand-lined molds.

Use of compact fittings conforming to AWWA C153 is acceptable. In no case shall fitting grade rating be less than adjoining pipe. Fittings shall be from same manufacturer as pipe.

Nuts and bolts for joints and fittings shall be corrosion resistant steel, NSS Technologies, Inc., Cor-Blue or approved equal.

B.3 Polyethylene Sheeting for Pipe Corrosion Protection

Polyethylene sheeting conforming to ASTM D4976, Type I, Class B, color black, Grade E-1, 1200 psi tensile strength, minimum thickness of 8 mil. Tube diameter or sheet width shall conform to AWWA C105.

Furnish tape for polyethylene sheeting that is 2-inch wide, black tape with rubber adhesive and minimum 9 mil polyethylene backing. Tape shall be 3M™ Preservation Sealing Tape 481 or an approved equal.

B.4 Trench Insulation

Extruded polystyrene board conforming to ASTM C578, Type V, rigid, closed cell type, with integral high density skin, Dow Chemical Company STYROFOAM™ Highload 100 or an approved equal.

Thermal Resistance: Typical 5 year aged value of R-5 per inch of thickness per ASTM C518.

Board Size: 24 x 96 x 2-inch thick. Square edges. Compressive Strength: Minimum 100 psi per ASTM D1621.

Water Absorption: 0.7 percent by volume maximum per ASTM D2842.

All bedding, cover and backfill materials shall meet City of Wauwatosa Standards and be approved by the City of Wauwatosa.

C Construction

C.1 General

In accordance to Wisconsin Statute 182.0175, "Damage to Transmission Facilities," Excavator, as defined in 182.0175(1)(bm), shall be solely responsible to provide advance notice to “Diggers Hotline, Inc.”, (800) 242-8511, not less than three working days prior to commencement of any Excavation, as defined in the statute, required to perform work contained in this Project, and further, Excavator shall comply with all other requirements of this Statute relative to Excavation.

Before beginning excavation of trench, contractor shall uncover stub end of existing water main to which relay is to connect, to permit adjustments in line and grade and verify connection required.

C.2 Installation of Ductile Iron Pipe

Join pipe and fittings by means of a compression type rubber gasket push-on joints conforming with AWWA C111.

Excavation and backfill for buried pipe shall conform to the Standard Specifications for Sewer and Water.

Remove lumped subsoil, boulders, and rock. If rock is encountered, remove to provide a clearance of at least 6 inches below and on each side of pipe, valves, and fittings.

Lay and maintain water mains to lines and grades established in the plans with fittings, valves, and hydrants at required locations.

Trench preparation shall proceed in advance of pipe installation only as far as can be backfilled in the same day.

Contractor shall not deviate from types of excavation indicated in the plans without prior concurrence of engineer except in case of roadways, driveways, and obstructions that may be indicated in the plans as open trench sections.

Place and shape bedding material to pipe, to a minimum depth of three inches under bell and four inches under spigot and compact to 95 percent modified proctor density.

Lower water main, fittings, valves, and hydrants carefully into trench, by means of derrick, ropes, or other suitable tools or equipment, to prevent damage to water main materials and protect coatings and linings.

Lay pipe with bell ends facing direction of laying. When grade exceeds 2 feet of rise per 100 feet of trench, bells shall face upgrade.

Provide holes for bells at each joint but no larger than necessary for joint assembly and assurance that pipe barrel will lie flat on trench bedding.

Trench bedding shall be true and even in order to provide support for full length of pipe barrel, except a slight depression may be provided to allow withdrawal of pipe slings or other lifting tackle.

If pipe laying crew cannot put pipe into trench and in place without getting earth into it, engineer may require placing, before lowering pipe into trench, a heavy, tightly woven, canvas bag of suitable size over each end of pipe and leaving there until connected to adjacent pipe.

Do not place debris, tools, clothing, or other materials in pipe during laying operations. Assemble joint and bring pipe to correct line and grade as each length of pipe is placed in trench.

Take precautions to prevent foreign materials from entering joint space and carefully check joint recess for foreign material before installing gasket.

Remove lumps of clay, mud, cinders, and similar materials that may have accumulated on surface of pipe during storage or laying and encase pipe in polyethylene sheeting in accordance to AWWA C105.

Secure pipe in place with bedding material, placed by hand or equally careful means, keeping bell end open. Remove pipe and fittings that do not allow sufficient and uniform space for joints and replace with pipe and fittings of proper dimensions to ensure such uniform space.

Upon daily and temporary completion of pipe installation, close open ends of pipe by a water-tight plug or other means approved by engineer. This provision applies during daytime inactivity as well as overnight.

If water is in trench, maintain pipe seal in place until water level is lowered four inches below pipe invert.

Whenever it becomes necessary to lay a main over, under, or around a known obstruction, contractor shall furnish and install required fittings. Laying of such fittings will be paid for at linear foot price for each size of main. No additional compensation will be paid to contractor for any expenses incurred because of such obstruction.

When an unknown underground structure interferes with work to such an extent that an alteration of the plans is required and alteration results in a change in cost to contractor, engineer will issue a written order for such altered work, specifying basis of payment or credit for such altered work.

Keep interior and exterior of pipe clean and free from foreign material before installation. Provide necessary means to wipe, brush, swab, or air blast to remove any foreign material from interior of pipe as instructed by pipe manufacturer and as directed by engineer.

Provide and place approved bedding sand and cover under and above water service to depths indicated in the plans. Provide and install crushed concrete backfill to depths indicated. Compact bedding sand and cover, and crushed concrete backfill to 95% modified proctor density.

C.3 Water Main Pressure and Leakage Testing
Pressure Testing:

After pipe has been laid, subject newly laid pipe or any valved section thereof to a hydrostatic pressure of at least 1.5 times working pressure at point of testing.

Tests pressures shall:

- Not be less than 1.25 times working pressure at highest point along test section.
- Not exceed pipe or thrust restraint design pressures.
- Be of at least 2-hour duration.
- Not vary by more than plus or minus 5 psi for duration of test.
- Not exceed twice rated pressure of valves or hydrants when pressure boundary of test section includes closed gate valves or hydrants. NOTE: Do not operate valves in either direction at differential pressure exceeding rated pressure.
- Not exceed rated pressure of valves when pressure boundary of test section included closed, resilient seated gate valves or butterfly valves.

Slowly fill each valved section of pipe and apply specified test pressure, based on elevation of lowest point of line or section under test and corrected to elevation of test gage, by means of a pump connected to pipe acceptable to engineer.

Do not operate valves in either opening or closing direction at differential pressures above rated pressure.

Before applying specified test pressure, completely expel air from section of pipe under test.

If permanent air vents are not located at all high points, Contractor shall install corporation cocks at such points to expel air as line is filled with water.

After all air has been expelled, close corporation cocks and apply test pressure. At conclusion of pressure test, remove corporation cocks and plug or leave in place at discretion of City of Wauwatosa.

Carefully examine exposed pipe, fittings, valves, hydrants, and joints during test.

Repair or replace any damaged or defective pipe, fittings, valves, or hydrants that are discovered following pressure test with sound material, and repeat test until it is satisfactory to City of Wauwatosa.

C.4 Leakage Testing

Leakage test may be conducted concurrently with pressure test.

Leakage shall be defined as quantity of water that must be supplied into newly laid pipe, or any valved section thereof, to maintain pressure within 5 psi of specified test pressure after air in pipeline has been expelled and pipe has been filled with water. Leakage shall not be measured by a drop in pressure in a test section over a period of time.

No pipe installation will be accepted if leakage is greater than that determined by following formula:

L = SD times Square Root of P, divided by 133,200

Where L is allowable leakage in gallons per hour; S is length of pipe tested in linear feet; D is nominal diameter of pipe in inches; and P is average test pressure during leakage test in pounds per square inch gage.

When hydrants are in test section, test shall be made against main valve in hydrant.

Acceptance shall be determined on basis of allowable leakage. If any test of laid pipe discloses leakage greater than that specified, contractor shall, at its own expense, locate and make repairs or replacement.

C.5 Flushing and Disinfection

Place calcium hypochlorite at upstream end of first section of pipe, at upstream end of each branch main, in first pipe section past valve, in hydrant leads, and at a minimum 500 foot interval in main.

Place the following amounts of calcium hypochlorite granules at beginning of main and at each 500-foot interval:

Pipe Diameter (Inches)	Calcium Hypochlorite Granules (Ounces)
4	0.5
6	1.0
8	2.0
12	4.0
16 and larger	8.0

Contractor may use tablets if prior approval is obtained from engineer. Procedure shall be as follows:

- Place one 5-gram calcium hypochlorite tablet in each hydrant, hydrant branch, and other appurtenance.
- Place 5-gram calcium hypochlorite tablets in accordance to the following table in each section of pipe.

Pipe Diameter	Length of Pipe Section (feet)				
(Inches)	<13	18	20	30	40
4	1	1	1	1	1
6	1	1	1	2	2
8	1	2	2	3	4
10	2	3	3	4	5
12	3	4	4	6	7
16	4	6	7	10	13

Based on 3.25 grams available chlorine per tablet, any portion of tablet rounded to next higher integer.

Attach tablets to inside and top at each end of newly installed pipe with an NSF 61 approved adhesive such as ITW Redhead A7, or an approved equal.

Do not apply adhesive to tablet except on broad side to be attached to surface of pipe.

If tablets are attached before pipe section is placed in trench, mark their position on section so it can be readily determined that pipe is installed with tablets at top.

When installation is completed, fill main with water at a rate such that water within main will flow at a velocity no greater than one foot per second.

Contractor shall separately meter and pay for water for filling and initial flushing of main.

Contractor shall provide labor and material necessary to transfer water from source to main to be tested. Only local City of Wauwatosa Water Utility employees shall operate valves.

Water shall enter main and be tested at low point in system to force entrapped air out at high end through an available hydrant or air release valve.

Close upper end hydrant or valve after air is expelled and chlorinated water discharge is present. Take precautions to assure that entrapped air is eliminated.

Water shall remain in pipe for at least 24 hours or as defined by regulatory requirements. If water temperature is less than 40 degrees F, water shall remain in pipe for at least 48 hours.

Position valves so that strong chlorine solution in main being treated will not flow into water mains in active service.

Water from new mains must successfully pass bacteriological test in accordance to requirements of Wisconsin Department of Natural Resources.

Properly and securely brace and maintain excavation until successful testing, flushing, chlorinating, and sampling of main is completed.

Contractor shall be responsible for protecting any required excavation by means of proper barricades and lanterns during sampling and testing period.

Provide access to main for sampling as directed by engineer. Water Utility will take necessary samples of water and obtain laboratory tests of samples.

D Measurement

The department will measure Ductile Iron (DI), Class 55 Water Main, 16-Inch and Ductile Iron (DI), Class 55 Water Main, 12-Inch by the linear foot, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.5000	Ductile Iron (DI), Class 55 Water Main, 16-Inch	LF
SPV.0090.5001	Ductile Iron (DI), Class 55 Water Main, 12-Inch	LF

Payment is full compensation for furnishing and installing all materials; and for excavating, backfilling, and compacting; polyethylene sheeting; and for trench insulation.

138. Ductile Iron (DI), Class 55 Water Main, 16-Inch, with 30-Inch Steel Casing Pipe, Item SPV.0090.5002.

A Description

This work includes providing and installing ductile iron water main in a steel casing pipe at locations indicated in the plans, conforming to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition and as hereinafter provided.

B Materials

B.1 General

Ductile iron (DI) piping shall be in accordance to AWWA C150, Class 55. Design pipe joint ends for rubber push-on gasket joints, conforming to AWWA C111.

Cast in or stamp on pipe manufacturer's mark, year of production, and "DI' or "DUCTILE.'

Pipe shall be cement mortar lined and have internal and external bituminous coats.

Casing spacers shall be a two-piece shell per carrier pipe and made from T-304 stainless steel of a minimum 14-guage thickness. Each shell section shall be lined with a 0.090" thick, ribbed PVC extrusion with a retaining section that overlaps the edges of the shell and prevents slippage. Bearing surfaces (runners) shall be ultra high molecular weight polyethylene. The runners shall be attached to support structures (risers) at appropriate positions to properly support the carrier pipe within the casing pipe and to ease installation. The runners shall be mechanically bolted to the riser. Risers shall be made of T-304 stainless steel of a maximum 10 gauge. Spacers shall be sized such that the height of the risers and runners are to center the water main within the casing pipe.

Casing pipe end seals shall be neoprene with T-304 stainless steel restraint bands.

Steel casing pipe shall conform to the Standard Specifications for Sewer and Water Construction in Wisconsin, 6th Ed.

B.2 Fittings

Fittings shall conform to AWWA C110, centrifugally cast in metal or sand-lined molds.

Use of compact fittings conforming to AWWA C153 is acceptable. In no case shall fitting grade rating be less than adjoining pipe. Fittings shall be from same manufacturer as pipe.

Nuts and bolts for joints and fittings shall be corrosion resistant steel, NSS Technologies, Inc., Cor-Blue or approved equal.

C Construction

C.1 General

In accordance to Wisconsin Statute 182.0175, "Damage to Transmission Facilities," Excavator, as defined in 182.0175(1)(bm), shall be solely responsible to provide advance notice to "Diggers Hotline, Inc." (800) 242-8511 not less than three working days prior to commencement of any Excavation, as defined in the statute, required to perform work contained in this Project, and further, Excavator shall comply with all other requirements of this Statute relative to Excavation.

Before beginning excavation of trench, contractor shall uncover stub end of existing water main to which relay is to connect, to permit adjustments in line and grade and verify connection required.

C.2 Installation of Ductile Iron Pipe

Join pipe and fittings by means of a compression type rubber gasket push-on joints conforming with AWWA C111.

Excavation and backfill for buried pipe shall conform to the Standard Specifications for Sewer and Water.

Remove lumped subsoil, boulders, and rock. If rock is encountered, remove to provide a clearance of at least 6 inches below and on each side of pipe, valves, and fittings.

Lay and maintain water mains to lines and grades established in the plans with fittings, valves, and hydrants at required locations.

Contractor shall not deviate from types of excavation indicated in the plans without prior concurrence of engineer except in case of roadways, driveways, and obstructions that may be indicated in the plans as open trench sections.

Place and shape bedding material to pipe, to a minimum depth of three inches under bell and four inches under spigot and compact to 95 percent modified proctor density.

Lower water main, fittings, valves, and hydrants carefully into trench, by means of derrick, ropes, or other suitable tools or equipment, to prevent damage to water main materials and protect coatings and linings.

Lay pipe with bell ends facing direction of laying. When grade exceeds 2 feet of rise per 100 feet of trench, bells shall face upgrade.

Provide holes for bells at each joint but no larger than necessary for joint assembly and assurance that pipe barrel will lie flat on trench bedding.

Trench bedding shall be true and even in order to provide support for full length of pipe barrel, except a slight depression may be provided to allow withdrawal of pipe slings or other lifting tackle.

If pipe laying crew cannot put pipe into trench and in place without getting earth into it, engineer may require placing, before lowering pipe into trench, a heavy, tightly woven, canvas bag of suitable size over each end of pipe and leaving there until connected to adjacent pipe.

Do not place debris, tools, clothing, or other materials in pipe during laying operations. Assemble joint and bring pipe to correct line and grade as each length of pipe is placed in trench.

Take precautions to prevent foreign materials from entering joint space and carefully check joint recess for foreign material before installing gasket.

Remove lumps of clay, mud, cinders, and similar materials that may have accumulated on surface of pipe during storage or laying and encase pipe in polyethylene sheeting in accordance to AWWA C105.

Secure pipe in place with bedding material, placed by hand or equally careful means, keeping bell end open. Remove pipe and fittings that do not allow sufficient and uniform space for joints and replace with pipe and fittings of proper dimensions to ensure such uniform space.

Upon daily and temporary completion of pipe installation, close open ends of pipe by a water-tight plug or other means approved by engineer. This provision applies during daytime inactivity as well as overnight.

If water is in trench, maintain pipe seal in place until water level is lowered four inches below pipe invert.

Whenever it becomes necessary to lay a main over, under, or around a known obstruction, contractor shall furnish and install required fittings. Laying of such fittings will be paid for at linear foot price for each size of main. No additional compensation will be paid to contractor for any expenses incurred because of such obstruction.

When an unknown underground structure interferes with work to such an extent that an alteration of the plans is required and alteration results in a change in cost to contractor, engineer will issue a written order for such altered work, specifying basis of payment or credit for such altered work.

Keep interior and exterior of pipe clean and free from foreign material before installation. Provide necessary means to wipe, brush, swab, or air blast to remove any foreign material from interior of pipe as instructed by pipe manufacturer and as directed by engineer.

Provide and place approved bedding sand and cover under and above water service to depths indicated in the plans. Provide and install crushed concrete backfill to depths indicated. Compact bedding sand and cover, and crushed concrete backfill to 95% modified proctor density.

C.3 Water Main Pressure and Leakage Testing

Pressure Testing:

After pipe has been laid, subject newly laid pipe or any valved section thereof to a hydrostatic pressure of at least 1.5 times working pressure at point of testing.

Tests pressures shall:

- Not be less than 1.25 times working pressure at highest point along test section.
- Not exceed pipe or thrust restraint design pressures.
- Be of at least 2-hour duration.
- Not vary by more than plus or minus 5 psi for duration of test.
- Not exceed twice rated pressure of valves or hydrants when pressure boundary of test section includes closed gate valves or hydrants. NOTE: Do not operate valves in either direction at differential pressure exceeding rated pressure.
- Not exceed rated pressure of valves when pressure boundary of test section included closed, resilient seated gate valves or butterfly valves.

Slowly fill each valved section of pipe and apply specified test pressure, based on elevation of lowest point of line or section under test and corrected to elevation of test gage, by means of a pump connected to pipe acceptable to engineer.

Do not operate valves in either opening or closing direction at differential pressures above rated pressure.

Before applying specified test pressure, completely expel air from section of pipe under test.

If permanent air vents are not located at all high points, contractor shall install corporation cocks at such points to expel air as line is filled with water.

After all air has been expelled, close corporation cocks and apply test pressure. At conclusion of pressure test, remove corporation cocks and plug or leave in place at discretion of City of Wauwatosa.

Carefully examine exposed pipe, fittings, valves, hydrants, and joints during test.

Repair or replace any damaged or defective pipe, fittings, valves, or hydrants that are discovered following pressure test with sound material, and repeat test until it is satisfactory to City of Wauwatosa.

C.4 Leakage Testing
Leakage test may be conducted concurrently with pressure test.

Leakage shall be defined as quantity of water that must be supplied into newly laid pipe, or any valved section thereof, to maintain pressure within 5 psi of specified test pressure after air in pipeline has been expelled and pipe has been filled with water. Leakage shall not be measured by a drop in pressure in a test section over a period of time.

No pipe installation will be accepted if leakage is greater than that determined by following formula:

L = SD times Square Root of P, divided by 133,200

Where L is allowable leakage in gallons per hour; S is length of pipe tested in linear feet; D is nominal diameter of pipe in inches; and P is average test pressure during leakage test in pounds per square inch gage.

When hydrants are in test section, test shall be made against main valve in hydrant. Acceptance shall be determined on basis of allowable leakage. If any test of laid pipe discloses leakage greater than that specified, contractor shall, at its own expense, locate and make repairs or replacement.

C.5 Flushing and Disinfection
Place calcium hypochlorite at upstream end of first section of pipe, at upstream end of each branch main, in first pipe section past valve, in hydrant leads, and at a minimum 500 foot interval in main.

Place the following amounts of calcium hypochlorite granules at beginning of main and at each 500-foot interval:

Pipe Diameter (Inches)	Calcium Hypochlorite Granules (Ounces)
4	0.5
6	1.0
8	2.0
12	4.0
16 and larger	8.0

Contractor may use tablets if prior approval is obtained from engineer. Procedure shall be as follows:

- Place one 5-gram calcium hypochlorite tablet in each hydrant, hydrant branch, and other appurtenance.
- Place 5-gram calcium hypochlorite tablets in accordance to the following table in each section of pipe.

Pipe Diameter (Inches)	Length of Pipe Section (feet) <13	18	20	30	40
4	1	1	1	1	1
6	1	1	1	2	2
8	1	2	2	3	4
10	2	3	3	4	5
12	3	4	4	6	7
16	4	6	7	10	13

Based on 3.25 grams available chlorine per tablet, any portion of tablet rounded to next higher integer.

Attach tablets to inside and top at each end of newly installed pipe with an NSF 61 approved adhesive such as ITW Redhead A7, or an approved equal.

Do not apply adhesive to tablet except on broad side to be attached to surface of pipe.

If tablets are attached before pipe section is placed in trench, mark their position on section so it can be readily determined that pipe is installed with tablets at top.

When installation is completed, fill main with water at a rate such that water within main will flow at a velocity no greater than one foot per second.

Contractor shall separately meter and pay for water for filling and initial flushing of main.

Contractor shall provide labor and material necessary to transfer water from source to main to be tested. Only local City of WauwatosaWater Utility employees shall operate valves.

Water shall enter main and be tested at low point in system to force entrapped air out at high end through an available hydrant or air release valve.

Close upper end hydrant or valve after air is expelled and chlorinated water discharge is present. Take precautions to assure that entrapped air is eliminated.

Water shall remain in pipe for at least 24 hours or as defined by regulatory requirements. If water temperature is less than 40 degrees F, water shall remain in pipe for at least 48 hours.

Position valves so that strong chlorine solution in main being treated will not flow into water mains in active service.

Water from new mains must successfully pass bacteriological test in accordance to requirements of Wisconsin Department of Natural Resources.

Properly and securely brace and maintain excavation until successful testing, flushing, chlorinating, and sampling of main is completed.

Contractor shall be responsible for protecting any required excavation by means of proper barricades and lanterns during sampling and testing period.

Provide access to main for sampling as directed by engineer. Water Utility will take necessary samples of water and obtain laboratory tests of samples.

D Measurement

The department will measure Ductile Iron (DI), Class 55 Water Main, 16-Inch with 30-Inch Steel Casing Pipe by the linear foot acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.5002	Ductile Iron (DI), Class 55 Water Main, 16-Inch, with 30-Inch Steel Casing Pipe	LF

Payment is full compensation for furnishing all materials; excavation of jacking and receiving pits, trenchless installation of water main and casing, temporary shoring, backfilling, and compacting.

139. Abandon Existing 6-Inch Sanitary Sewer, Item SPV.0090.5003; Abandon Existing 8-Inch Sanitary Sewer, Item SPV.0090.5004.

A Description

Perform work under these items in accordance to the details as shown on the plans and the requirements of the Standard Specifications for Sewer and Water Construction in Wisconsin, latest Edition.

Notify, in writing, all businesses and property owners/occupants within the project limits to inform them of the project and to inform them of any temporary sewer service disconnections. Provide and maintain all necessary bypass pumping for sanitary sewer abandonment.

B Materials

B.1 General

All materials and work required to abandon existing sanitary sewers will conform to the Standard Specifications for Sewer and Water.

B.2 Cellular Concrete

Provide cellular concrete meeting the following specifications: 1 part cement, 1 part fly ash, 8 parts sand, or an approved equal, and water. Provide cement meeting the requirements of standard spec 501.2.1 for Type 1 Portland Cement. Provide sand meeting

the requirements of standard spec 501.2.5.3. Provide water meeting the requirements of standard spec 501.2.4.

C Construction
Bulkhead sewers that are to be abandoned in place with an 8-inch brick or concrete wall. Fill all sewers with cellular concrete. Bulkhead and abandon all existing sewers as shown in the plans.

D Measurement
The department will measure Abandon Existing 6-Inch Sanitary Sewer and Abandon Existing 8-Inch Sanitary Sewer by the linear foot of sewer, acceptably completed. The pipe will be measured horizontally to the nearest foot, through all manholes designated to be abandoned, from face to face of bulkheads, including the bulkhead thickness.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.5003	Abandon Existing 6-Inch Sanitary Sewer	LF
SPV.0090.5004	Abandon Existing 8-Inch Sanitary Sewer	LF

Payment is full compensation for providing all materials including all excavating; for bulkheads and abandoning existing sanitary sewer with cellular concrete; for providing backfill slurry material; and for providing and maintaining all necessary bypass pumping for abandonment.

140. Pipe Underdrain 6-Inch Special, Item SPV.0090.8001.

A Description
This work shall consist of providing necessary subsurface drainage by constructing trenches, placing the required geotextile fabric, installing the designated pipes or drainage devices within, cored connections, back-plastering and or mortaring connections to storm sewer structures, and backfilling the trenches with the specified backfill material in accordance to standard spec 310, 612 and 645, as shown on the plans, and as hereinafter provided.

B Materials
B.1 Base Aggregate
All aggregate shall be base aggregate open graded and shall conform to standard spec 310.2 of the standard specifications.

B.2 Pipe Underdrain
Conform to standard spec 612.2.

B.3 Geotextile Fabric
Geotextile fabric shall consist of Type DF Schedule A and shall conform to standard spec 645.2.4.

C Construction
Conform to standard spec 612.3.

D Measurement
The department will measure Pipe Underdrain 6-Inch Special by the linear foot, acceptably completed. The department will measure along the centerline of the pipe, center to center of junctions and fittings.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.8001	Pipe Underdrain 6-Inch Special	LF

Payment is full compensation for providing, handling, and placing all materials, including pipe, base aggregate open graded, geotextile fabric Type DF Schedule A, cored connections, back-plastering and or mortaring connection to storm sewer structure, fittings, and caps or plugs; for furnishing all excavating, plowing, and re-compacting, salvaging; disposing of surplus material; and for restoring the work site. No additional payment will be made for base aggregate open graded.

141. Survey Project 1060-33-73, Item SPV.0105.0001.

A Description
This special provision describes modifying standard spec 105.6 and 650 to define the requirements for construction staking for this contract.

Replace standard spec 105.6.2 with the following:

The department will not perform any construction staking for this contract. The contractor shall perform all survey required to lay out and construct the work under this contract, subject to engineer's approval.

The survey includes establishing horizontal and vertical position for all aspects of construction including but not limited to storm sewer, subgrade, base, curb, gutter, curb and gutter, drainage structures, structure layout, all retaining wall layout, pavement, barriers (temporary and permanent), low profile concrete barrier, low profile concrete barrier end sections, overhead signs, street lighting, electrical installations, supplemental control, slope stakes, ponds, traffic signals, ITS, FTMS, paths, utilities, conduit, landscaping elements, irrigation system layout, installation of community sensitive design elements, traffic control items, fencing, etc.

The department may choose to perform quality assurance surveys during the project. These quality assurance surveys do not relieve the responsibility for performing all survey work required to lay out and construct the work under this contract.

Delete standard spec 650.1.

B (Vacant)

C Construction
Conform to standard spec 650.3 and as modified in this special provision.

Replace standard spec 650.3.3.1 with the following:

Under the Survey Project bid item, global positioning system (GPS) machine guidance for conventional subgrade staking on all or part of the work may be substituted. The engineer may require reverting to conventional subgrade staking methods for all or part of the work at any point during construction if, in the engineer's opinion, the GPS machine guidance is producing unacceptable results.

Replace standard spec 650.3.3.3.4.1 with the following:

The department will provide the contractor staking packet as described in the Construction and Materials Manual (CMM) 7.10. At any time after the contract is awarded, the available survey and design information may be requested. The department will provide that information within 5 business days of receiving the contractor's request. The department incurs no additional liability beyond that specified in standard specification 105.6 or standard specification 650 by having provided this additional information.

Add the following to standard spec 650.3.3.3.6.2:

Record all subgrade elevation checks and submit a hard copy to the engineer at the completion of the project.

D Measurement
Replace standard spec 650.4 with the following:

The department will measure Survey Project 1060-33-73 as a separate single lump sum unit of work for survey, acceptably completed.

E Payment
Replace standard spec 650.5 with the following:

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.0001	Survey Project 1060-33-73	LS

Payment is full compensation for performing all survey work required to lay out and construct all work under this contract. No additional payments will be made for restaking due to construction disturbance and knock-outs.

142. Pavement Cleanup 1060-33-73, Item SPV.0105.0002.

A Description

This special provision describes cleanup of dust and debris from pavements within and adjacent to the job site.

B Materials

B.1 Pavement Cleanup

Furnish a vacuum-type street sweeper equipped with a power broom, water spray system, and a vacuum collection system.

Vacuum equipment shall have a self-contained particulate collector capable of preventing discharge from the collection bin into the atmosphere.

Use a vacuum-type sweeper as the primary sweeper, except as specified herein or approved by the engineer.

C Construction

C.1 Pavement Cleanup

Keep all pavements, curb lanes and gutters both closed and open to public traffic within the job-site boundaries free of dust and debris generated from any activity under the contract. Keep all pavements, curb lanes and gutters adjacent to the project free of dust and debris that are affected by land disturbing, dust generating activities, as defined in the contractor's dust control implementation plan.

Provide surveillance to identify if material is being tracked from the jobsite. Clean up spillage and material tracked from the project within an hour of occurrence or as directed by the engineer. Perform cleanup operations in a safe manner.

Provide routine sweeping of all pavements, curb lanes and gutters on local street active haul routes a minimum of once a day as defined in the Dust Control Implementation Plan (DCIP) or as directed by the engineer. This includes Swan Boulevard, Underwood Parkway, W. Watertown Plank Rd, STH 100, Discovery Parkway, and Wisconsin Avenue for routine sweeping.

In addition to routine sweeping, conduct sweepings as the engineer directs or approves, to deal with dust problems that might arise during off-work hours or emergencies. Provide the engineer with a contact person available at all times to respond to requests for emergency sweeping. Respond to emergency sweeping requests within four hours.

If the vacuum-type sweeper breaks down, a mechanical broom sweeper may be substituted for no more than 24 hours total elapsed time. Repair the vacuum-type sweeper within that 24 hours or substitute a vacuum-type sweeper.

Skid steers with mechanical power brooms may only be utilized on sidewalks and driveways whose pavements will not support the weight of a street sweeper, unless otherwise approved by the engineer.

D Measurement
The department will measure Pavement Cleanup 1060-33-73 as a single lump sum unit of work for pavement clean up, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.0002	Pavement Cleanup 1060-33-73	LS

Payment schedule for this item will be in accordance to the percentage of contract value earned.

Payment is full compensation for surveillance, mobilization, sweeping, disposing of materials and any other labor, tools or equipment necessary to complete the work.

143. Removing Former Greenhouse Buildings, Item SPV.0105.0003; Removing Former Salt Dome Buildings, Item SPV.0105.0004.

A Description
Perform work according to standard spec 204.

Supplement standard spec 204 with the following:

Work under these items consists of Removing Former Office Greenhouse Buildings, Generator Building, Forestry Building, Boiler Building and Hoophouses located at 10340 W. Watertown Plank Road, and 140-ft diameter Salt Dome Structure, and all miscellaneous sheds and hoppers located at 10190 W. Watertown Plank Road, and disposing of all debris and resulting materials in accordance to standard spec 204, and as hereinafter provided.

B (Vacant)

C Construction
C.1 General
A summary of the appraisal report for the existing building structures is on file and available for inspection at the Wisconsin Department of Transportation Southeast Region Office Building, 141 NW Barstow Street, Waukesha, WI 53187-0789. A site visit of each site is strongly recommended by all perspective bidders and demolition subcontractors.

Prior to the demolition of the buildings under this contract, abatement of asbestos and hazardous materials has been performed and properly inspected. Availability of the Asbestos Inspection Report and Abatement Documentation is available upon request to the engineer. Each building's structural and non-structural components will remain for demolition and removal under this contract.

Conduct removal work in a prudent manner and exercise care to preclude damage to any adjacent building. The contractor is responsible for any damage caused by his operations to adjacent buildings. Keep abutting roads, public places, and private property adjacent to the building being removed in a debris or litter-free condition throughout the removal process.

Removal of the existing buildings foundations and footings are included in this item.

All materials generated during demolition activities are the property of the contractor. Dispose of unclaimed and removed material as specified for disposing of materials in standard spec 203.3.4. Do not burn buildings to remove. Comply with Wisconsin Department of Natural Resources (DNR) air pollution control rules per standard spec 201.3.

C.2 Submittals

C.2.1 Site Safety Plan

Prepare a Site-specific Safety Plan for the Former Greenhouse Buildings and Salt Dome Buildings' demolition work and maintain copies at the project office. Provide two copies of the Site-specific Safety Plan to the engineer at least two weeks prior to beginning demolition work. A copy of the plan signed by all personnel present at the demolition site shall be submitted at the conclusion of the project.

C.2.2 Dust Control Plan

Prepare a Site-specific Dust Control Plan for the Former Greenhouse Buildings and Salt Dome Buildings' demolition as part of the ECIP required under the article Erosion Control. Identify how the contractor intends to implement control and monitoring of air borne particulates from building demolition work.

C.2.3 Noise Control Plan

Prepare a Noise Control Plan for the Former Greenhouse Buildings and Salt Dome Buildings' demolition including planned hours of demolition, controls to limit noise from demolition activities, and planned noise monitoring to comply with the requirements under article Public Convenience and Safety.

C.2.4 Demolition Plan

The contractor is responsible for the methods and sequence of demolition, including effects on the overall stability of the building structures being removed. Prior to mobilization to the sites, submit the Demolition Plan for review to ascertain compliance with the requirements specified. Include the methods and procedures used to perform demolition and the sequencing and scheduling of demolition, including:

- The name of the contractor's on-site-employee designated in responsible charge of all removal operations.
- Methods of removal, proposed haul route(s) and disposal, the proposed haul route, method of hauling, and proposed destination.
- Acknowledgement that the contractor has visited the sites and reviewed the existing structure plans in preparing the removal plan.

Provide two copies of the removal plan and analysis computations to the engineer at least two weeks prior to beginning removal work for review and acceptance.

It is understood that whether or not the engineer concurs in the removal plan as submitted or revised, the contractor will in no way be relieved of the responsibility of providing a safe and controlled removal operation.

C.3 Notice to Department of Natural Resources

Prior to commencement of any demolition activities, notify the Southeast Regional Office of the Wisconsin DNR located at 2300 N. Dr. Martin Luther King Dr., P.O. Box 12436, Milwaukee, WI 53212, (414) 263-8500, at least ten business days in advance of the contractor's intent to raze the Former Greenhouse Buildings and Salt Dome Buildings. In the notice to DNR, include the address and type of building to be razed, the proposed date that the building will be razed, and the name of the licensed or approved landfill where the demolition waste will be disposed. Mail a copy of this notice, within 10 days of DNR notification, to the WisDOT SE Region, Attn: Kurt Flierl, PO Box 798, Waukesha, WI 53187-0798.

C.4 Hazardous Materials

C.4.1 Asbestos and Any Other Hazardous Materials

It is anticipated that asbestos containing materials other hazardous materials will be removed from the existing structures prior to the demolition of the buildings. If asbestos and any other hazardous materials are encountered, immediately cease razing operations on the site and notify the engineer. The department will hire a private consultant to remove any asbestos and hazardous containing materials that may be encountered.

C.4.2 Underground Fuel Storage Tanks

The contractor will be supplied with a copy of the Environmental Site Assessment for each parcel for which an assessment was deemed necessary or for sites on which underground storage tanks were removed. A private consultant will remove any tanks discovered during the Environmental Site Assessment before razing activities begin.

If tanks are discovered on the sites during razing that were not removed as part of or in the absence of an Environmental Site Assessment, immediately cease razing operations on the site and contact the engineer. The department will hire a private consultant to remove the discovered tanks.

C.5 Custody of the Buildings
Upon written order by the department representative to commence work, the buildings and surrounding state-owned property shall be under the custody of the contractor. Nothing in this proposal shall be interpreted as setting forth the condition of the buildings or the appurtenances thereto. Except as otherwise provided herein, it is to be understood that the department accepts no responsibility for the protection of the buildings and appurtenances against damages sustained either prior to or subsequent to the time of the letting of the work under this contract.

While the buildings are in the contractor's custody, keep the buildings in a closed condition. The contractor shall take such measures as are necessary to safeguard the public from damages or injury. Do not remove doors or windows from the buildings until the actual day of razing, unless all openings are sealed as approved by the engineer. Only the contractor and his subcontractor shall salvage building components. At all times, do not allow the public in the building or on the grounds.

C.6 Building Demolition and Removal
Perform work in accordance to standard spec 204 and as hereinafter provided.

Furnish all labor, equipment, tools, transportation and incidentals necessary for the performance of the work. Secure and pay for all permits that are required for the demolition work.

Prepare the sites, including the installation and maintenance of all barriers, barricades, warning signs, fencing, and all other items as required for the proper protection of persons on the sites, members of the public, and property. Leave no hazard unmarked and unprotected after demolition is complete.

Remove all concrete steps, concrete sidewalks, concrete curb, concrete curb and gutter, asphaltic curb, concrete slabs, parking lot bollards, and flag poles from the premises. Remove existing parking lot lights, light poles, and bases. Safely disconnect power to the lights and remove electrical appurtenances.

Notify public utility companies serving the building in sufficient time, before removal operations, to allow them to disconnect and remove their facilities from the buildings.

Shut off municipal water service lines and sanitary sewer laterals at the curb boxes.

Abandon all water service lines and sanitary sewer laterals in compliance with all ordinances, statutes, regulations, and permit requirements of the municipality in which the building is situated and those of the State of Wisconsin.

Remove heating units, fixtures, and similar appurtenances to the elevation of the basement floors. Remove all furniture, miscellaneous furnishings, miscellaneous appliances, mailboxes, sheds, fencing and all other relevant yard improvements and debris.

Until standing walls have been razed, safely brace existing walls at all times to ensure complete safety during the wrecking operations. Excavate as required to remove building structures from the premises.

Break and remove entirely from the sites all basement walls, floors and footings. Remove footings up to their bottom elevation above gravel bed.

Dispose of all non-hazardous demolition waste in a landfill licensed or approved in writing by the Department of Natural Resources and in accordance to NR500, Wisconsin Administrative Code. Failure to properly dispose of solid waste is a violation of State Solid Waste Statutes and Administrative code and is subject to issuance of a citation under Wisconsin Statute 287.81(2)(a).

Remove all material from the premises in a safe manner and in compliance with all applicable laws and ordinances. Do not disturb adjacent properties. At the end of each day's work, leave sites in a safe and secure condition so that no part of the existing buildings are in danger of toppling or falling and unauthorized admittance is prohibited.

C.7 Disposal of Material
Supplement standard spec 104.8 with the following:

Clear the entire premises of all decomposable and combustible refuse, debris and materials resulting from the removal of the buildings. Upon completion of the work, leave the entire premises in a neat condition. Do not deposit or leave decomposable or combustible refuse, debris, or materials resulting from the removal of the buildings on any state-owned lands, or right-of-way of any highways, including any exposed openings resulting from razing activities.

Do not bury materials on the sites. Remove materials from the sites as work progresses. Use all reasonable means to divert demolition waste from landfills and facilitate recycle or reuse material generated during demolition.

Provide all waste disposals, including loading, transporting, and disposing of all debris, rubble, or trash that results from Removing Former Greenhouse Buildings and Salt Dome Buildings. Take all materials designated for disposal to a Wisconsin DNR-approved solid waste disposal facility or at contractor’s construction debris disposal site, as appropriate.

C.8 Backfill
Ensure that all exposed openings are free of all refuse and debris.

Backfill exposed openings in accordance to standard spec 204.3.1.2. Compact backfill in accordance to standard spec 207.3.6.2. Furnish backfill meeting the requirements of standard spec 209 for use as backfill material.

C.9 Site Restoration
The contractor shall prepare and submit an erosion control implementation plan (ECIP) as outlined elsewhere in the Special Provisions.

Topsoil graded areas, as designated by the engineer, immediately after grading is completed within those areas. Seed, fertilize, and mulch/erosion mat top-soiled areas, as designated by the engineer, within 5 calendar days after placement of topsoil. If graded areas are left exposed for more than 14 calendar days, seed those areas with temporary seed.

C.10 Fencing
After removing the buildings, furnish and erect suitable fencing around the exposed openings resulting from excavation, to protect and safeguard the public from all hazardous conditions created by the operations. Install the fencing in such a manner to ensure that the public is prevented from falling into any openings. The fence shall be a height of 52 inches, and the posts shall be at least 58 inches high and spaced at a distance no greater than 10 feet apart. Remove the fencing after all open excavations have been backfilled satisfactorily.

D Measurement
The department will measure Removing Former (Type) Buildings as separate single lump sum unit of work for building removal, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.0003	Removing Former Greenhouse Buildings	LS
SPV.0105.0004	Removing Former Salt Dome Buildings	LS

Payment is full compensation for preparation of all submittals; for furnishing all excavating; for furnishing all concrete removal, removing parking lot bollards, flag poles, fencing, and all yard improvements and debris; for design and erection of temporary supports, shoring and bracing; for building foundation and footing removal; for building removal; for site restoration; for contacting the Wisconsin DNR; for obtaining and paying for furnishing all required permits; for notifying utility companies; for disconnecting and abandoning utilities, sewer, and water services; for removing light poles and light foundations as outlined in this specification; for placing and compacting backfill material; for disposing of removed surplus materials including loading, transporting, and unloading; for restoring the work site; for furnishing, installing and removing fencing, barriers, barricades, warning signs, and all other items as required for proper protection; for removing and disposing of heating units, fixtures, and similar appurtenances; for removing and disposing of all miscellaneous furniture, furnishings, and appliances; and for furnishing all labor, equipment, tools, taxes, fees, and incidentals necessary to complete the work in accordance to the contract.

144. Concrete Pavement Joint Layout, Item SPV.0105.0005.

A Description

This special provision describes providing a concrete pavement joint layout design for intersections and marking the location of all joints in the field.

B (Vacant)

C Construction

Plan and locate all points necessary to establish the horizontal position of the transverse and longitudinal joints in the concrete pavement to prevent uncontrolled cracking. Submit a joint layout design to the engineer before paving each intersection. Mark the location of all concrete pavement joints in the field. Follow the plan details for joints in concrete pavements making adjustments as required to fit field conditions.

D Measurement

The department will measure Concrete Pavement Joint Layout as a single lump sum unit of work for all joint layout designs and marking, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.0005	Concrete Pavement Joint Layout	LS

Payment is full compensation for providing the intersection joint layout designs and marking all joints in the field.

The department will adjust pay for crack repairs as specified in standard spec 415.5.3.

145. Maintenance of Lighting Systems - Swan Boulevard, Item SPV.0105.1006.

A Description

Maintain existing and proposed lighting system beginning on the date that the contractor's activities (electrical or otherwise) at the job site begin. Be responsible for the proper operation and maintenance of all existing and proposed lighting systems which are part of, or which may be affected by, the work until final acceptance or as otherwise determined by the engineer.

Before performing any excavation, removal, or installation work (electrical or otherwise) at the site, initiate a request for a maintenance transfer and preconstruction inspection, as specified elsewhere herein, to be held in the presence of the engineer and a representative of the party or parties responsible for maintenance of any lighting systems which may be affected by the work. Make the request for the maintenance preconstruction inspection no less than seven calendar days prior to the desired inspection date.

Existing lighting systems, when depicted on the plans, are intended only to indicate the general equipment installation of the systems involved and shall not be construed as an exact representation of the field conditions. Visit the site to confirm and ascertain the exact condition of the electrical equipment and systems to be maintained.

B (Vacant)

C Construction

C.1 Existing Lighting Systems

Existing lighting systems are defined as any lighting system or part of a lighting system in service prior to this contract. The contract drawings indicate the general extent of any existing lighting. Ascertain the extent of effort required for compliance with these specifications; failure to do so will not be justification for extra payment or reduced responsibilities. Maintain existing lighting system as follows:

Partial Maintenance: Only maintain the affected circuits if the number of circuits affected by the contract is equal to or less than 40% of the total number of circuits in a given controller and the controller is not part of the contract work unless otherwise indicated. Isolate the affected circuits by means of in-line waterproof fuse holders as specified elsewhere and as approved by the engineer.

Full Maintenance: Maintain the entire controller and all associated circuits if the number of circuits affected by the contract is greater than 40% of the total number of circuits in a given controller, or if the controller is modified in any way under the contract work.

C.2 Proposed Lighting Systems

Proposed lighting systems shall be defined as any temporary or final lighting systems or part of a lighting system which is to be constructed under this contract.

Maintain all items installed under this contract. Maintenance shall include, but not be limited to, any equipment failures or malfunctions as well as equipment damage either by the motoring public, contractor operations, or other means. Include the potential cost of replacing or repairing any malfunctioning or damaged equipment in the bid price of this item; it will not be paid for separately.

C.3 Maintenance Operations

Maintain lighting units (including sign lighting), cable runs, and lighting controls. In the case of a pole knockdown or sign light damage caused by normal vehicular traffic, promptly clear the lighting unit and circuit discontinuity and restore the system to service.

Provide weekly night-time patrol of the lighting system, with patrol reports filed immediately with the engineer and with deficiencies corrected within 24 hours of the patrol. Present patrol reports on standard forms as designated by the engineer. Uncorrected deficiencies may be designated by the engineer as necessitating emergency repairs as described elsewhere herein.

Perform corrective action on specific lighting system equipment according to the following chart. The chart lists the maximum response, service restoration, and permanent repair time.

Incident or Problem	Service Response Time	Service Restoration Time	Permanent Repair Time
Control cabinet out	1 hour	4 hours	7 Calendar days
Hanging mast arm	1 hour to clear	na	7 Calendar days
Motorist caused damage or leaning light pole 10 degrees or more	1 hour to clear	4 hours	7 Calendar days
Circuit out – Needs to reset breaker	1 hour	4 hours	na
Circuit out – Cable trouble	1 hour	24 hours	21 Calendar days
Outage of 3 or more successive lights	1 hour	4 hours	na
Outage of 75% of lights on one tower	1 hour	4 hours	na
Outage of light nearest RR crossing approach, Islands and gores	1 hour	4 hours	na
Outage (single or multiple) found on night outage survey	na	na	7 Calendar days

C.4 Lighting

1. **Serve Response Time:** The amount of time from the initial notification to the contractor until a patrolman physically arrives at the location.
2. **Service Restoration Time**: The amount of time from the initial notification to the contractor until the time the system is fully operational again. (In cases of motorist-caused damage, the undamaged portions of the system are operational.)
3. **Permanent Repair Time**: The amount of time from initial notification to the contractor until the time permanent repairs are made if the contractor was required to make temporary repairs to meet the service restoration requirement.

Failure to provide this service will result in liquidated damages of $500 per day per occurrence. In addition, the department reserves the right to assign any work not completed within this timeframe to the State Electrical Engineering and Electronics Unit. Reimburse all costs associated to repair this uncompleted work. Failure to pay these costs to the State Electrical Engineering and Electronics Unit within one month after the incident will result in additional liquidated damages of $500 per month per occurrence. Unpaid bills will be deducted from the cost of the contract. Repeated failures and/or a gross failure of maintenance shall result in the State's Electrical Engineering and Electronics Unit being directed to correct all deficiencies and the resulting costs deducted from any monies owed the contractor.

Repair damage caused by the contractor's operations at no additional cost to the contract.

C.5 Operation of Lighting
The lighting shall be operational every night, dusk to dawn. Duplicate lighting systems (such as temporary lighting and proposed new lighting) shall not be operated simultaneously. Do not keep lighting systems in operation during long daytime periods. Demonstrate to the satisfaction of the engineer that the lighting system is fully operational prior to submitting a pay request. Failure to do so will be grounds for denying the pay request.

D Measurement
The department will measure Maintenance of Lighting Systems - Swan Boulevard as a single lump sum unit of work for maintenance, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.1006	Maintenance of Lighting Systems – Swan Boulevard	LS

Payment is full compensation for Maintenance of Lighting Systems.

146. Temporary EVP System W. Watertown Plank Road and Discovery Parkway, Item SPV.0105.3001.

A Description
This special provision describes furnishing, installing, and maintaining temporary EVP systems at the temporary signalized intersection as shown in the plans.

B Materials
Furnish an emergency vehicle preemption system compatible with the City of Wauwatosa system and users. Contact the City of Wauwatosa Public Works, Joe Kroll; (414) 471-8422; 11100 W. Walnut Road, Wauwatosa, WI; jkroll@wauwatosa.net, for information regarding the equipment needs and operational requirements of the emergency vehicle preemption system.

C Construction
The Temporary EVP System, as shown in the temporary traffic signal plans or as directed by the engineer, shall be complete in place, tested, and in full operation during each stage and sub-stage of construction.

Install the temporary vehicle detection system as shown in the plans and according to the manufacturer's recommendations. Determine a suitable location for the temporary EVP detectors for each stage and sub-stage of construction. Detectors may be mounted on the temporary traffic signal span wire or wood poles. Relocate the temporary EVP detectors

to a suitable location if construction activities and/or construction staging changes impede the detector operation. Arrange for testing of equipment prior to acceptance of the installation for each construction stage.

All cables associated with the temporary vehicle detection system shall be routed to the cabinet. Each lead shall be appropriately marked as to which EVP channel it is associated.

Periodic adjustment and/or moving of the temporary EVP detectors may be required due to changes in traffic control, staging, or other construction operations.

Ensure that the temporary EVP system stays in clean working order. Periodic cleaning of the equipment may be required due to dirt and dust build-up.

Provide the engineer records of all EVP settings used during construction.

D Measurement

The department will measure Temporary EVP System (Location), furnished, installed, and completely operational, as a single complete lump sum unit of work per intersection, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.3001	Temporary EVP System W. Watertown Plank Road and Discovery Parkway	LS

Payment is full compensation for furnishing and installing all required equipment, materials, and supplies; for maintaining and changing the EVP detectors to match the plans, traffic control, and construction staging; for relocating the temporary EVP detectors due to construction activities, if required; for testing the EVP system for each stage and sub-stage of construction; for periodically cleaning all temporary EVP detectors; and for cleaning up and properly disposing of waste.

147. Trial Drilled Foundation Shaft, Item SPV.0105.4400.

A Description

The work included here in consists of installing a non-production, trial drilled foundation shaft to verify the proposed means and methods of drilled foundation shaft installation for construction of drilled foundation shafts shown in the plans.

Engineer acceptance of a successfully constructed trial drilled foundation shaft is required prior to beginning the installation of any other drilled foundation shafts for the contract.

B Materials
All materials for the trial shaft are to be as specified the bid item Drilled Foundation Shaft 34.75-Inch.

C Construction
The trial drilled foundation shaft must be installed by the same contractor and work crews who will perform the production drilled foundation shaft installation work on the contract. Use the same equipment and installation procedures intended to be used for the production work on the contract and in accordance to the accepted Drilled Foundation Shaft Installation Plan.

The trial drilled foundation shaft is intended to be installed in the same or similar soil profile as the production drilled foundation shafts included in the contract. Construct the trial drilled foundation shaft at the location shown on the plans or at a revised nearby location mutually agreed to by the engineer and contractor.

The trial drilled foundation shaft shall consist of one 34.75-inch diameter drilled shaft as shown on the plans for B-40-775. The trial drilled foundation shaft shall be installed to the same depth, and reinforced the same as the production drilled foundation shafts for pier 1 of B-40-775. Include four crosshole sonic logging (CSL) tubes within the trial drilled foundation shaft.

Construction of the trial drilled shaft shall be as specified under the item Drilled Foundation Shaft 34.75-Inch and the accepted Drilled Foundation Shaft Installation Plan. Dispose of all soil excavation and excess materials removed for construction of the trial drilled foundation shaft in accordance to the requirements of the contract.

Acceptance of the trial drilled foundation shaft will be as specified for Drilled Foundation Shaft 34.75-Inch including non-destructive testing as specified for Drilled Foundation Shaft 34.75-Inch. Upon acceptance by the engineer, cutoff the trial drilled foundation shaft and remove as necessary so as to be at least 2-feet below finished grade, and abandoned in place.

D Measurement
The department will measure Trial Drilled Foundation Shaft as a single lump sum unit of work, acceptably completed.

Unsuccessful or rejected Trial Drilled Foundation Shaft installations, or trial drilled foundation shafts not meeting specifications, will not be measured for payment or be cause for additional compensation.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.4400	Trial Drilled Foundation Shaft	LS

Payment is full compensation for drilling and excavating the trial drilled foundation shaft; handling and properly disposing of excavated, augured and cored soils; placing the concrete for drilled foundation shaft to the required diameter and depth; furnishing and installing the reinforcing steel; furnishing and placing CSL tubes; meeting QMP drilled shafts special provision; removal, backfilling; and for site restoring.

148. Dewatering for Detention Basin Construction, Item SPV.0105.8002.

A General

This special provision describes dewatering of existing detention basin including control of water during excavation and clay lining construction.

A.1 Submittals

Discharge Permits

Submit discharge and well permit applications to Wisconsin Department of Natural Resources (WDNR) if dewatering wells are to be used. Also submit design and calculations for the sedimentation tank or clarifier system to be utilized to reduce sediment levels to minimum levels as required by WDNR prior to discharging.

Water Control Plan

Submit to the department for approval the water control plan at least 30 days prior to installation of water control systems. Resubmit as appropriate if the system or any part thereof is modified during installation or operation.

Should requirements of any permit be different than requirements herein, the more stringent requirements shall control.

Water control plan shall as a minimum, include:

- Descriptions of proposed groundwater and surface water control facilities including, but not limited to, equipment; methods; installation; standby equipment and power supply, pollution control facilities including silt removal facilities, discharge locations to be utilized; removal of water control systems; provisions for immediate temporary water supply as required by this section.
- The contractor shall submit shop drawings showing locations, dimensions, and relationships of elements of each water control system. The submittal shall include design calculations demonstrating adequacy of proposed water control or isolation systems and their components. The contractor shall provide manufacturer's literature describing installation, operation, and maintenance procedures for all components of the water control system.
- Design calculations demonstrating adequacy of proposed water control systems and components. The contractor may be required to demonstrate the systems proposed in the water control plan and to verify that adequate equipment, personnel, and materials are provided to dewater the excavations at all locations and times required.

If system is modified during installation or operation, revise or amend and resubmit Water Control Plan.

Quality Control Submittals
During construction, submit pumping rate measurements, water level readings taken at construction phase piezometers and groundwater quality data as needed.

A.2 Control of Water

General
This section addresses the provisions for controlling, handling, disposing and treating groundwater and surface water, including contaminated groundwater that may be encountered in detention basin excavations, as required for performance of the work; maintaining the control of water facilities, including maintenance items such as the disposal of sludge from settling detention basins and treatment plants; and work necessary to repair or replace property damaged due to groundwater disturbance.

General dewatering and lowering of the groundwater table for the purpose of stabilization of the detention basin excavation surface will be permitted for detention basin construction.

Dewater existing detention pond water to construct the expansion of the existing pond as shown on the plan.

The contractor is responsible for designing, furnishing, installing and maintaining dewatering system that accomplishes continuous control of water at all times during the course of construction, and shall provide adequate backup systems to accomplish control of water. The method of control, handling, and disposal of groundwater and surface water shall be by whatever means are necessary and in conformance with this section to obtain satisfactory working conditions and to maintain the progress of the work.

All required drainage, pumping, treatment, and disposal shall be done without damage to adjacent property or structures and without interference with the operations of other contractors, or the rights of public and private owners, or pedestrian and vehicular traffic.

The contractor shall modify the water control system at his own expense if, after installation and while in operation, it causes or threatens to cause damage to adjacent property or to existing buildings, structures, or utilities.

A.3 Regulatory Requirements

Storm water discharge to storm sewers, watercourses, lakes, and wetlands shall conform to the requirements of local, state, and Federal regulations.

Water from excavations shall be kept separate from storm water discharge associated with surface construction. Ground water from excavations shall be discharged into the nearest sanitary sewer, in compliance with all applicable codes and regulations.

Discharge of ground water into storm sewers, open waterways, or on open ground is prohibited.

In the event that contaminated waters are encountered, the contractor is required to notify the department prior to discharging contaminated water into the sanitary sewer system. The contractor may be required to provide laboratory test results documenting contaminant concentrations.

B Materials

The contractor is responsible to determine materials required to meet these dewatering specifications. The piezometer and observation well materials are listed below.

B.1 Filter Pack

Filter pack shall be clean natural silica sand; graded such that all of the material passes the No. 4 sieve and is retained on the No. 30 sieve.

B.2 Filter Pack Seal

Filter pack seal shall be clean natural silica sand; graded such that all of the material passes the No. 10 sieve and is retained on the No. 40 sieve.

B.3 Bentonite Seal

Bentonite pellets used to form bentonite seals shall be 3/8-inch diameter compressed pellets made from high swelling montmorillonite.

B.4 Piezometers (PZ)

Riser pipe for piezometers shall consist of schedule 40 or thicker PVC pipe with flush threaded couplings. All PVC pipe shall have a nominal diameter of 2 inches. A PVC cap for the riser shall be provided. Sensing tips shall consist of 2-inch ID factory-slotted PVC threaded pipe, with 0.02-inch size openings, 60 inches in length.

C Construction

C.1 General

Continuously control, handle, treat and dispose water at all times during the course of construction, and provide adequate backup systems to accomplish control of water in conformance with this section to obtain satisfactory working conditions and to maintain the progress of the work. Water to be controlled includes groundwater, contaminated groundwater; surface water (precipitation and run-off); and wastewater from combined or separated sewers or related facilities.

Obtain all permits required from Wisconsin Department of Natural Resources, Milwaukee Metropolitan Sewerage District, local municipality and any other agencies for installation and operation of water control systems and discharging of collected water into water courses, water bodies, sewers or the ground.

Perform the work without damage to adjacent property or structures and without interference with the operations of other contractors, or the rights of public and private owners, or pedestrian and vehicular traffic. Modify the water control system at your own expense if, after installation and while in operation, it causes or threatens to cause damage to adjacent property or to existing buildings, structures, or utilities.

C.2 Surface Water Control

Intercept and divert surface drainage away from the work sites by the use of dikes, curbwalls, ditches, sumps, or other means. Design surface drainage systems so that they do not cause erosion on or off the site. Control surface runoff to prevent entry of surface water into excavations and to prevent erosion on or off the site. Remove drainage systems when no longer needed.

C.3 Water Control in Excavations

Use water control methods that are appropriate, as determined by the contractor, to permit conditions, ground conditions, construction operations, and requirements of these plans and specifications. The methods shall involve removal of water accumulating within excavations from precipitation and groundwater infiltration, and may involve removal of water outside excavations by means such as the use of dewatering or pressure relief wells.

Water control measures shall minimize adverse effects of elevated or reduced water pressure on the work, the surrounding ground and adjacent facilities and structures. Design and operate the water control measures to prevent removal of in-site materials (development of lost ground), or loosening or softening of subgrade soils within excavations.

The water control methods shall be of such capacity that they will lower and maintain the free water and piezometric levels, to an elevation at least 2 feet below all earth slopes, detention basin bottoms and excavation surfaces including the base of excavation required for placement of the clay liner thickness. The methods shall have sufficient capacity to accomplish this desired result allowing for normal variations in precipitation and soil and aquifer properties.

Control groundwater and surface water such that the detention basin construction can be performed without adverse effects of water on the facility being constructed, including hydrostatic uplift pressures. If soil stratification is such that the water level cannot be maintained at the specified levels, contractor shall, at no additional cost to the department, control seepage of groundwater by whatever means are necessary to assure there is no loss of ground by erosion or piping of fines with seepage and no instability of slopes due to seepage. Control water during periods when excavation and installing slope underdrains, clay patches and as such other times as is necessary for efficient and safe execution of the work.

Should water enter the excavation in amounts that could adversely affect the performance of the work or that has the potential to cause loss or damage to adjacent property or structures, take immediate steps to control the water inflow.

Provide standby pumps and standby power supply where disruption of water control systems could allow water inflows to threaten the work or the safety of personnel.

C.4 Monitoring of Groundwater Levels

Monitor groundwater levels as necessary to evaluate the sufficiency of the control of water system. Monitor groundwater levels in piezometers. A system of construction piezometers is required to monitor free water surface elevations and piezometric elevations to evaluate the effectiveness of the water control system in fulfilling the requirements specified herein. Piezometers shall be of adequate numbers and in suitable arrangements and depths for determining the free water surface elevations and piezometric elevation over the area. A minimum of one piezometer per four dewatering wells or two per pond excavation location shall be installed with the dewatering system at locations and depths proposed by the contractor and approved by the department's representative. At least one piezometer shall be placed at the edge of the planned pond between the pond and the closest building/structure.

Piezometer materials and installation shall conform to the requirements herein. Determination of baseline water levels and monitoring of water levels by the engineer and contractor shall be in accordance to this article.

C.5 Installing Piezometers

Drill, sample and log borings in soil drilled for the purpose of installing piezometers as specified herein. Use 2 ½ foot soil sampling intervals with an SPT sampler. Drill borings using 4-inch minimum inside diameter casing and water. Drill the borings so as not to damage adjacent utilities. If use of drilling fluid is necessary to stabilize the borehole, use a biodegradable organic polymeric drilling fluid. Perform a standard penetration test at 2.5-foot depth intervals.

Install the sensing tip, riser pipe, filter pack, filter pack seal, and annular space seal as determined by contractor’s engineer. The engineer will determine the depth of the sensing zone for each piezometer installed based upon observations of retained soil samples. Make pipe joints secure and watertight. Withdraw the drill casing in small increments as the backfill materials are placed, so that collapse of the borehole does not occur. Do not rotate casing during withdrawal.

Place filter pack material slowly so that bridging does not occur in the boring and to prevent the instrument from being lifted as the casing is withdrawn. Use a measuring rod or similar device to measure the height of the filter pack to ensure that the filter pack is installed over the proper depth interval. Carefully raise and lower the measuring rod while the filter pack is installed, to prevent bridging and to tamp the filter pack in place.

Place a filter pack seal above the filter pack. Place the filter pack seal in a similar manner as for filter pack material. Place a bentonite seal above the filter pack seal.

Place the annular space seal by tremie grouting. Place the grout in such a manner as to not disturb the integrity of the filter pack and seal.

Grout for the annular space seal for piezometers shall consist of a bentonite to cement ratio of 0.15/1 by weight, with sufficient water to allow pumping. Mix bentonite and water first.

Provide the top of each riser pipe with a cap in which an air vent hole 1/8 inch in diameter has been drilled. The cap shall be easy to remove.

Develop each installation a minimum of 24 hours after completion. Airlift water from the riser pipe by injecting compressed air through a small tube inserted 3 to 5 feet above the top of the sensing tip. Take care not to inject air directly into the sensing tip. Continue development until the water becomes clear and, in the opinion of the engineer, the material soil filter has been developed. Perform a rising head sensitivity test.

The contractor shall make a minimum of one reading at each piezometer, per 24-hour period, 5 days per week during the period of dewatering activities (including dewatering by pumping seepage from sumps) These piezometer readings shall be recorded on an approved form and reported to the engineer within 24 hours after they are obtained.

C.6 Dewatering Wells

Obtain a site-specific dewatering discharge or construction site storm water discharge permit if the WDNR has specific concerns that are not addressed by other permits that might otherwise apply.

Obtain a WDNR permit for operation of any well or well system that has a combined pumping capacity of 70 gallons per minute or more (a high capacity extraction system). For purposes of permitting, a well is defined as any opening made in the ground where the depth of the opening is greater than its largest surface dimension and extends more than 10 feet below ground surface. The permit will require that wells be constructed, operated, and abandoned in accordance to Chapter NR 812, Wis. Adm. Code.

Comply with WDNR regulations regarding disposal of contaminated groundwater in the event that contaminated waters are encountered. Obtain additional permits, if required. Notify the Milwaukee Metropolitan Sewerage District for any discharge of contaminated water into the sewer system, and provide laboratory test results documenting contaminant concentrations.

Keep dewatering from wells to the minimum necessary for execution of the work. Obtain any additional geotechnical information necessary for design of a dewatering well system, including performing pump tests, grain size analyses, groundwater chemical analyses, and subsurface investigations. Design and operate wells so as to prevent removal of fine soils with seepage through backpack material and screens. Provide means

by which water discharge from each well can be measured and flow rates adjusted. Construct and operate wells in accordance to WDNR requirements, including obtaining permits, as required.

The wells shall be designed, installed and operated in a manner that will preclude removal of materials from the foundation by the pumping operation (hereafter referred to as "piping of fines"). After installation, each well shall be individually pump-tested at maximum design flow to verify acceptability with respect to piping of fines (sediment mostly consisting of silt and sand) as measured using a centrifugal tester. Any well or wellpoint segment found to be causing piping of fines at a rate exceeding 2 parts per million (ppm) by volume during the individual pump-test at the maximum design flow shall be replaced in a manner acceptable to the engineer, and at no additional cost to the department. Each well shall be checked for sediment piping using a centrifugal tester immediately after installation and at least once per month during operation. Measure the sediment content of the total dewatering effluent using a centrifugal tester at least every 30 days. If the sediment content of the total effluent is greater than 1 ppm, contractor shall identify and abandon wells that are producing excessive sand and replace them if necessary. All sediment content tests shall be performed in the presence of the engineer. Sediment content test results shall be furnished to the department within 24 hours.

Monitor the rate of discharge from each well on a daily basis with an accuracy of at least 2 percent of the flow and make records available to the engineer on a weekly basis or as requested. Abandon dewatering wells as specified in 204.3.3.3 of the standard specifications and in accordance to NR 812 Wis. Adm. Code, whichever is more stringent.

C.7 Ground Loss From Removal or Disturbance of Groundwater

Immediately support any structure including, but not limited to, buildings, bridges, freeway surfaces, streets, and utilities, or portions of such structure, including footings, foundations, basements, walls or concrete and asphalt driveways that become unstable or vulnerable to settlement due to removal or disturbance of groundwater. Cease excavation and other construction operations that result or have the potential to result in further settlement until corrective measures are implemented. Support shall include but not be limited to shoring; sheeting; bracing; underpinning; compaction grouting; driving piles; excavating, backfilling, and placing new structural concrete beneath or adjacent to the unstable structure; or other means necessary to rectify the particular problem involved.

Bear the costs of all loss or damage arising from removal or disturbance of groundwater including, but not limited to claims for subsidence and loss of structure support that may occur in the prosecution of the work. If the contractor fails to correct the damage resulting from his operations, the engineer may deem the work to be unacceptable work as defined in standard spec 105.3.2.2.

C.8 Treatment and Disposal of Water

Discharge all water removed from the construction site through pipes or hoses. Do not convey water in open ditches or trenches. Discharge water in a manner that will not cause

soil erosion at the discharge point. Discharge shall not cause sediment accumulation or flooding in any stream, storm sewer, or on adjacent properties.

Treat all water to remove suspended solids, oils, cement, bentonite, and other contaminants by use of settling detention basins, on-site treatment plant, or other means selected by the contractor. Design the treatment systems for the maximum discharge rates consistent with the means and methods selected by the contractor. Treatment systems shall be capable of expansion if greater capacity becomes necessary during the course of the work. Provide to the engineer copies of all records required by the WDNR.

Protection of storm sewers and drains shall be in conformance with the local municipality Erosion Control Ordinance and the Wisconsin Construction Site Best Management Practices Handbook, latest revision. Any requirements and costs for such use shall be the responsibility of the contractor. Do not cause flooding by overloading or blocking the flow in the drainage facilities, and leave the facilities unrestricted and as clean as originally found. Document the condition of the drainage facilities prior to and subsequent to their use. The engineer may independently verify the condition of such facilities. Repair or restore any damage to facilities as a result of the contractor's operations as directed by the authority having jurisdiction, at the contractor's expense.

Should requirements of any permit be different than requirements herein, the more stringent requirements shall control.

Remove suspended solids from water discharged from excavations, sufficient to preclude sediment deposition in the receiving sewer.

Ventilate enclosures around wells and water discharge points to prevent the accumulation of combustible gas that may escape from solution in groundwater.

On completing the work, clean out and dispose of all sediments and residues in settling detention basins, treatment facilities, and the like. Dispose of sediments and residues in accordance to applicable regulations.

C.9 Abandonment of Piezometers

At the conclusion of detention basin construction, abandon the piezometers installed during construction in accordance to NR 812 Wis. Adm. Code.

D Measurement

The department will measure Dewatering for Detention Basin Construction as single lump sum unit of work for dewatering, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.8002	Dewatering for Detention Basin Construction	LS

Payment is full compensation for providing submittals, obtaining permits, furnishing materials, installation, all dewatering, testing, protection, maintenance, replacement or repair of damaged instruments, installations or adjacent structures, obtaining data readings, and for abandonment.

149. Concrete Sidewalk 5-Inch Special, Item SPV.0165.0010.

A Description

This special provision describes placing colored concrete. Placement, forming, and aggregate of the concrete shall be in accordance to the pertinent requirements of standard spec 415, 416 and 501, in accordance to the details as shown on the plans, and as hereinafter provided.

B Materials

At least 15 working days prior to the start of colored concrete installation supply one 2-foot x 2-foot panel sample of the colored concrete. The final color and finish is to be approved by the City of Wauwatosa, Mr. William Wehrley, (414) 479-8929, prior to placement of any colored concrete in the field.

The accepted sample shall be the standard of finish for all colored concrete work within the project.

The concrete shall be grade A2 or grade A-FA as specified in standard spec 501. All colored concrete shall originate from the same batch plant.

C Construction

Concrete shall be placed by installers experienced with colored, broom finished concrete.

Concrete sidewalk shall match the visual appearance of the approved sample. Concrete sidewalk not conforming to the color and finish of the approved sample shall be replaced at the contractor's expense.

C.1 Color Admixture

Use integral color admixture material specifically designed for coloring concrete.

Blend admix at plant per manufacturers specifications to achieve the indicated color. Color admixtures manufacturer and colors include:

Solomon Color – **Brick 417**
Schofield System – **Quarry Red C-32**
Davis Colors – **Brick Red 160**

Or approved equal

C.2 Finish
Finish shall be a medium brushed (broom) finish with a 6-inch smooth troweled finish as shown in the plans.

D Measurement
The department will measure Concrete Sidewalk 5-Inch Special in area by the square foot placed and acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0165.0010	Concrete Sidewalk 5-Inch Special	SF

Payment is full compensation for installation of colored concrete; excavating and preparing the foundation; providing all materials, including concrete, and expansion joints; placing, finishing, protecting and curing concrete; and for preparing sample panels.

150. Longitudinal Grooving Bridge Deck, Item SPV.0165.4600.

A Description
Provide longitudinal deck grooves parallel to the centerline of the roadway prior to opening the bridge to traffic as directed by the engineer.

B Materials
The grooving machine to contain blades mounted on a multi-blade arbor on a self-propelled machine built for grooving hardened concrete surfaces.

The grooving machine to have a depth control device that detects variations in the deck surface and adjusts the cutting head height to maintain a specified depth of groove.

The grooving machine to have a guide device to control multi-pass alignment.

C Construction
Perform longitudinal grooving operation in a manner to preclude any damage to the concrete deck surface.

Longitudinal grooving operation to result in a uniformly grooved deck surface.

Cut grooves continuously across the deck width to within 18 inches of the barrier rail, curb line, or median divider. If metal floor drains extend more than 18 inches from the barrier rail, curb line, or median divider, all grooves on the bridge deck surface are to end within 6 inches of the floor drain perimeter.

At skewed metal edged expansion joints in the bridge deck surface, all grooves on the bridge deck surface are to end within 6 inches of the joint leaving no ungrooved surface

adjacent to each side of the joint greater than 6 inches in width on the deck side of the expansion joints.

Produce grooves that are continuous across construction joints or other joints in the concrete deck surface less than ½-inch wide.

Grooves shall be 1/8-inch wide and 3/16-inch deep. The longitudinal groove shall be spaced at ¾ inches center-to-center. Tolerance for groove width shall be +1/16 inch to -0 inch. Tolerance for groove depth shall be ± 1/16 inch. Tolerance for groove spacing shall be ± 1/16 inch.

Collect, remove and dispose of solid material residue and liquid waste resulting from grooving operations by vacuuming in a manner satisfactory to the engineer.

D Measurement

The department will measure Longitudinal Grooving Bridge Deck by the square foot, acceptably completed. The quantity will be determined by multiplying the grooved width by the total length grooved.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0165.4600	Longitudinal Grooving Bridge Deck	SF

Payment is full compensation for providing the required machinery and operators; and for grooving, for collecting, removing and properly disposing of all waste materials.

151. Wall Concrete Panel Mechanically Stabilized Earth LRFD/QMP Pilot, Item SPV.0165.4610.

A Description

This special provision describes designing, furnishing materials and erecting a permanent earth retention system in accordance to the lines, dimension, elevations and details as shown on the plans and provided in the contract. The design life of the mechanically stabilized earth (MSE) wall and all wall components shall be 75 years.

This special provision describes the quality management program (QMP) for MSE walls. A quality management program is defined as all activities, including process control, inspection, sampling and testing, and necessary adjustments in the process that are related to the construction of the MSE wall, which meets all the requirements of this provision.

This special provision describes contractor quality control (QC) sampling and testing for backfill density testing, documenting those results, and documenting related production and placement process changes. This special provision also describes department quality verification (QV), independent assurance (IA), and dispute resolution.

Chapter 8 of the department's construction and materials manual (CMM) provides additional detailed guidance for QMP work and describes sampling and testing procedures. The contractor may obtain the CMM from the department's web site at:

http://roadwaystandards.dot.wi.gov/standards/cmm/index.htm

B Materials

B.1 Proprietary Mechanically Stabilized Earth Concrete Panel Wall Systems

The supplied wall system must be from the department's approved list of concrete panel mechanically stabilized earth wall systems.

Proprietary wall systems may be used for this work, but must conform to the requirements of this specification and be pre-approved for use by the department's Bureau of Structures, Structures Design Section. The department maintains a list of pre-approved systems of retaining walls. To be eligible for use on this project, a system must have been pre-approved and added to that list prior to the bid opening date. The name of the pre-approved proprietary wall system selected shall be furnished to the engineer within 25 days after the award of contract. The location of the plant manufacturing the concrete panels shall be furnished to the engineer at least 14 days prior to the start of panel production.

To receive pre-approval, the retaining wall system must comply with all pertinent requirements of this provision. Applications for pre-approval may be submitted at any time. Applications must be prepared in accordance to the requirements of Chapter 14 of the department's LRFD Bridge Manual. Information and assistance with the pre-approval process can be obtained by contacting the Structures Design Section in Room 601 of the Hill Farms State Transportation Building in Madison or by calling (608) 266-8494.

B.2 Design Requirements

It is the responsibility of the contractor to supply a design and supporting documentation as required by this special provision, for review by the department, to show the proposed wall design is in compliance with the design specifications. Four copies of the following shall be submitted to the engineer for review and acceptance no later than 60 days from the date of notification to proceed with the project.

The plans and shop drawings shall be prepared on reproducible sheets 11 inch x 17 inch, including borders. Each sheet shall have a title block in the lower right corner. The title block shall include the project identification number and structure number. Design calculations and notes shall be on 8 ½ inch x 11 inch sheets, and shall contain the project identification number, name or designation of the wall, date of preparation, initials of designer and checker, and page number at the top of the page. All plans, shop drawings, and calculations shall be signed, sealed and dated by a professional engineer licensed in the State of Wisconsin.

The design shall be in compliance with the *AASHTO LRFD Bridge Design Specifications 5th Edition 2010*, (AASHTO LRFD) with latest interim specifications for Mechanically

Stabilized Earth Walls, WisDOT's current *Standard Specifications for Highway and Structure Construction* (Standard Specifications), Chapter 14 of the WisDOT LRFD Bridge Manual and standard engineering design procedures as determined by the department. Loads, load combinations, load and resistance factors shall be as specified in AASHTO LRFD Section 11. The associated resistance factors shall be defined in accordance to Table11.5.6-1 LRFD.

Design and construct the walls in accordance to the lines, grades, heights and dimensions shown on the plans, as herein specified, and as directed by the engineer. Where walls or wall sections intersect with an included angle of 130 degrees or less, a vertical corner element separate from the standard panel face shall abut and interact with the opposing standard panels. The corner element shall have ground reinforcement connected specifically to that panel and shall be designed to preclude lateral spread of the intersecting panels. If the wall is installed in front of a bridge abutment or wing, it shall also be designed to resist the applied abutment/bridge lateral forces specified on the contract plans.

Walls parallel to supporting highway traffic shall be designed for the effects of highway surcharge loading equivalent of 2 feet soil surcharge weight or 240 psf. The design shall also consider the traffic barrier impact where applicable. Walls that do not carry highway traffic shall be designed for a live load surcharge of 100 psf in accordance to Chapter 14 of the WisDOT LRFD Bridge Manual or as stated on the plans.

A maximum value of the angle of internal friction of the wall backfill material used for design shall be assumed to be 30 degrees without a certified report of tests. If a certified report of tests yields an angle of internal friction greater than 30 degrees, the larger test value may be used for design, up to a maximum value of 36 degrees.

An external stability check at critical wall stations showing Capacity Demand Ratios (CDR) for sliding, eccentricity, and bearing checks is performed by the department and are provided on the wall plans.

The design of the Wall Concrete Panel Mechanically Stabilized Earth by the contractor shall consider the internal and compound stability of the wall mass in accordance to AASHTO LRFD 11.10.6. The internal stability shall include soil reinforcement pullout, soil reinforcement rupture, and panel-reinforcement connection failure at each soil reinforcement level. The design shall be performed using the Simplified Method or Coherent Gravity Method. Calculations for factored stresses and resistances shall be based upon assumed conditions at the end of the design life. Compound stability shall be computed for the applicable strength limits.

Facing panels shall meet the design requirements of AASHTO LRFD 11.10.2.3. The Facing panels shall also be designed to resist compaction stresses that occur during the wall erection. The minimum thickness of the Facing panel shall be 5.5 inches. The surface area of a standard single panel cannot exceed 60 square feet. The maximum height of a standard panel shall be 5 feet. The top and bottom panels may exceed 5 foot in

height based on site topography subject to the approval by the Structures Design Section. The design of the steel reinforcement within the panels shall be based on one-way bending action. Design the wall panels and joints between panels to accommodate a maximum differential settlement of 1 foot over a 100-foot length, unless the plans indicate other.

The minimum length of soil reinforcement measured from the back face of the wall shall be equal to 0.7 the wall height or as shown on the plan. In no case shall this length be less than 8 feet. The soil reinforcement length shall be the same from the bottom to the top of the wall. The soil reinforcement shall extend a minimum of 3.0 feet beyond the theoretical failure plane in all cases. The maximum vertical spacing of soil reinforcement layers shall be 31 inches. The uppermost layer of the reinforcement shall be located a minimum of six inches below the bottom of an overlying slab, footing or top of the wall. The upper layers of the soil reinforcement shall also be checked to verify that they have sufficient tensile resistance against traffic barrier impact where applicable.

All soil reinforcement steel required for the reinforced soil zone shall be connected to the face panels. The reinforcement and the reinforcement/facing connection strength shall be designed to resist maximum factored reinforcement loads in accordance to AASHTO LRFD Section 11.10.6. Facing connection strength shall be defined as the resistance factor times the failure load, or the load at 0.5 inch deformation times 0.9, whichever is less. The nominal long term design strength in steel reinforcement and connections shall be based upon assumed conditions at the end of the design life.

Soil reinforcement shall be prefabricated into single or multiple elements before galvanizing. Soil reinforcement shall be fabricated or designed to avoid piling, drainage structures or other obstacles in the fill without field modifications. Cutting or altering of the basic structural section of either the strip or grid at the site is prohibited unless approved by the Structures Design Section. A minimum clearance of 3” shall be maintained between any obstruction and reinforcement unless otherwise approved by the Structures Design Section. Splicing steel reinforcement is not allowed, unless approved by the Structures Design.

MSE facing panels shall be installed on concrete leveling pads. The minimum cross section of the leveling pad shall be 6-inches deep by 1-foot wide. Potential depth of frost penetration at the wall location shall not be considered in designing the wall for depth of leveling pad.

Submit the following to the engineer for review: complete design calculations, explanatory notes, supporting materials, specifications, and detailed plans and shop drawings for the proposed wall system. Sample analyses and hand output shall be submitted to verify the output by the software. The design calculations and notes shall clearly indicate the Capacity to Demand Ratios (CDR) for all internal stabilities as defined in AASHTO LRFD.

The wall submittal package shall be submitted electronically to the engineer and Structures Design Section. Submit all required information no later than 30 days prior to beginning construction of the wall. The detailed plans and shop drawings shall include all details, dimensions, quantities and cross-sections necessary to construct the walls.

B.3 Wall System Components

Materials furnished for wall system components under this contract shall conform to the requirements of this specification. All certifications related to material and components of the wall systems specified in this subsection shall be submitted to the engineer.

B.3.1 General

The walls shall have modular precast concrete face panels produced by a wet cast process, and have cast-in-place concrete pads or footings. The concrete panels shall have a minimum strength of 4000 psi at 28 days. The panel edges shall be configured so as to conceal the joints. The detail shall be a shiplap, tongue and groove or other detail adequate to prevent vandalism or ultraviolet light damage to the backside of the wall joint covering. Joints between panels shall be no more than 0.75 inch. Use full wall height slip joints at points of differential settlement when detailed on the plan. Horizontal joints must be provided with a compressible bearing material to prevent concrete to concrete contact.

A minimum of two bearing pads shall be used per panel. The allowable bearing stress shall not exceed 900 psi. The bearing pads shall be preformed EPDM rubber conforming to ASTM D-2000, Grade 2, Type A, Class A with a minimum Durometer Hardness of 80, or high- density polyethylene pads with a minimum density of 0.034 lb/in^3 in accordance to ASTM 1505.

An 18-inch wide geotextile shall be used on the backface of the wall panels to cover all panel joints. The geotextile shall meet the physical requirements stated in standard spec 645.2.4 for Geotextile Fabric, Type DF, Schedule B, except that the grab tensile strength shall be a minimum of 180 pounds in both the machine and cross-machine directions. The geotextile shall be attached with a standard construction adhesive suitable for use on concrete surfaces and cold temperatures. The adhesive shall be applied to the panels, not to the geotextile.

All steel portions of the wall system exposed to earth shall be galvanized. All soil reinforcement and attachment devices shall be carefully inspected to ensure they are true size and free from defects that may impair the strength and durability.

Use a wall leveling pad that consists of poured concrete masonry, Grade A, A-FA, A-S, A-T, A-IS or A-IP concrete conforming to standard specification section 501 as modified in standard spec 716. Provide QMP for leveling pad concrete as specified in standard spec 716.

The minimum embedment to the top of the leveling pad shall be 1 foot 6 inches or as given on the plan or given in AASHTO LRFD 11.10.2.2 whichever is greater. Step the leveling pad to follow the general slope of the ground line. The leveling pad's steps shall

keep the bottom of the wall within one half the panel heights of the minimum embedment i.e. the minimum embedment plus up to one half the height of one panel. Additional embedment may be detailed by the contractor, but will not be measured for payment.

B.3.2 Backfill

Furnish and place backfill for mechanically stabilized earth concrete panel walls as shown on the plans and as hereinafter provided.

Provide and use backfill that consists of natural sand or a mixture of sand with gravel, crushed gravel or crushed stone. It shall not contain recycled or milled asphalt, recycled concrete, foundry sand, bottom ash, blast furnace slag or other potentially corrosive material.

Provide material conforming to the following gradation requirements as per AASHTO T27.

Sieve Size	Percentage by Weight Passing
1 inch	100
No. 40	0 - 60
No. 200	0 - 15

The material shall have a liquid limit not greater than 25, as per AASHTO T89, and a plasticity index not greater than 6, as per AASHTO T90. In addition, backfill material shall meet the following requirements:

Test	Method	Value
pH	AASHTO T-289	5 – 10.0
Sulfate content	AASHTO T-290	200 ppm max.
Chloride content	AASHTO T-291	100 ppm max.
Electrical Resistivity	AASHTO T-288	3000 ohm/cm min.
Organic Content	AASHTO T-267	1.0% max.
Angle of Internal Friction	AASHTO T-236	30 degrees min. (At 95.0% of maximum density and optimum moisture, per AASHTO T99)

Prior to placement of the backfill, obtain and furnish to the engineer a certified report of test results that the backfill material complies with the requirements of this specification. This certified report of test shall be less than 6 months old. Tests will be performed by a certified independent laboratory. Additional certified report of tests (except Angle of Internal Friction test) are required for every 2000 cubic yards of backfill used per wall. In

addition, when backfill characteristics and/or sources change, a certified report of all tests will be provided for the new backfill material.

C Construction

C.1 Excavation and Backfill

Excavation will encompass preparing the leveling pad foundation and the area below the reinforcing strips in accordance to standard spec 206. The volume of excavation covered is limited to the width of the reinforced mass and to the depth of the leveling pad unless shown or noted otherwise on the plan. At the end of each working day, provide good temporary drainage such that the backfill shall not become contaminated with run-off soil or water if it should rain. Do not stockpile or store materials or large equipment within 10 feet of the back of the wall.

C.2 Compaction

Compact all backfill behind the wall as specified in standard spec 207.3.6. Compact the backfill to 95.0% of maximum density as determined by AASHTO T-99, Method C. Ensure that adequate moisture is present in the backfill during placement and compaction to prevent segregation and to help achieve compaction.

Compaction of backfill within 3 feet of the back face of the wall should be accomplished using lightweight compaction devices. Use of heavy compaction equipment or vehicles should be avoided within 3 feet of the panels.

Place and compact the MSE backfill to the level of the next higher layer of MSE reinforcement before placing the MSE reinforcement or connecting it to the wall facing. The MSE reinforcement shall lay horizontally on the top of the most recently placed and compacted layer of MSE backfill. Bending of MSE reinforcement that result in a kink in the reinforcement shall not be allowed. If skewing of the reinforcement is required due to obstructions in the reinforced fill, the maximum skew angle shall not exceed 15 degrees from the normal position unless a greater angle is shown on the plans. The adequacy of the skewed reinforcement in such a case shall be addressed by supporting calculations.

C.3 Panel Tolerances

As backfill material is placed behind a panel, maintain the panel in its proper inclined position according to the supplier specifications and as approved by the engineer. The supplier shall specify the back batter so that the final position of the wall is vertical. Vertical tolerances and horizontal alignment tolerances shall not exceed ¾-inch when measured along a 10-foot straight edge. The maximum allowable offset in any panel joint shall be ¾-inch. The overall vertical tolerance of the wall (plumbness from top to bottom) shall not exceed ½-inch per 10 feet of wall height. Erect the precast face panels to ensure that they are located within 1 inch from the contract plan offset at any location to ensure proper wall location at the top of the wall. Provide a ¾-inch joint separation between all adjacent face panels to prevent direct concrete-to-concrete contact. Maintain this gap by the use of bearing pads and/or alignment pins. Failure to meet this tolerance shall cause the engineer to require the contractor to disassemble and re-erect the affected portions of

the wall. In addition, imperfect molding, honeycombing, cracking or severe chipping of panels shall be cause of panel rejection.

C4 Quality Management Program

C.4.1 Quality Control Plan

Submit a comprehensive written quality control plan to the engineer at or before the pre-construction meeting. Do not perform MSE wall construction work before the engineer reviews and accepts the plan. Construct the project as the plan provides.

Do not change the quality control plan without the engineer's review and acceptance. Update the plan with changes as they become effective. Provide a current copy of the plan to the engineer and post in the contractor's laboratory as changes are adopted. Ensure that the plan provides the following elements:

- An organizational chart with names, telephone numbers, current certifications and/or titles, and roles and responsibilities of QC personnel.
- The process used to disseminate QC information and corrective action efforts to the appropriate persons. Include a list of recipients, the communication process that will be used, and action time frames.
- A list of source locations, section and quarter descriptions, for all aggregate materials requiring QC testing.
- Descriptions of stockpiling and hauling methods.
- An outline for resolving a process control problem. Include responsible personnel, required documentation, and appropriate communication steps.
- Location of the QC laboratory, retained sample storage, and other documentation.
- A summary of the locations and calculated quantities to be tested under this provision.

C.4.2 Quality Control Personnel

Perform the quality control sampling, testing, and documentation required under this provision using HTCP certified technicians. Have a grading technician certified under HTCP at level I present at the each grading site during all wall backfill placement, compaction, and nuclear testing activities. Have a nuclear density technician certified under HTCP at level I perform field density and field moisture content testing.

If an Assistant Certified Technician (ACT) is performing sampling or testing, a certified technician must coordinate and take responsibility for the work an ACT performs. Have a certified technician ensure that all sampling and testing is performed correctly, analyze test results, and post resulting data. No more than one ACT can work under a single certified technician.

C.4.3 Equipment

Furnish the necessary equipment and supplies for performing quality control testing. Ensure that all testing equipment conforms to the equipment specifications applicable to the required testing methods. The engineer may inspect the measuring and testing devices

to confirm both calibration and condition. Calibrate all testing equipment according to the CMM and maintain a calibration record at the laboratory.

Furnish nuclear gauges from the department's approved product list at http://www.atwoodsystems.com/materials. Ensure that the gauge manufacturer or an approved calibration service calibrates the gauge the same calendar year it is used on the project. Retain a copy of the calibration certificate with the gauge.

Conform to ASTM D 6938 and CMM 8.15 for density testing and gauge monitoring methods. Perform nuclear gauge measurements using gamma radiation in the backscatter or direct transmission position. Perform each test for 4 minutes of nuclear gauge count time.

Split each Proctor sample and identify so as to provide comparison with the department's test results. Unless the engineer directs otherwise, retain the QC split samples for 14 calendar days and promptly deliver the department's split samples to the department

C.4.4 Quality Control (QC) Testing

Perform compaction testing on the backfill. Perform the quality control sampling, testing, and documentation required under this provision using HTCP certified technicians. Have a grading technician certified under HTCP at level I present at the site during all wall backfill operations, compaction, and nuclear testing activities. Have a nuclear density technician certified under HTCP at level I, or ACT certified technician, perform field density and field moisture content testing. Conform to CMM 8.15 for testing and gauge monitoring methods. The QC technician must retain a split sample for the region and deliver it to the region laboratory within 72 hours. Conduct testing at a minimum frequency of 1 test per 50 cubic yards of backfill, or major portion thereof. A minimum of one test for every lift is required. Deliver documentation of all compaction testing results to the engineer at the time of testing.

Perform 1 gradation and 5-point Proctor test every 750 cubic yards of fill and provide the region a split sample within 72 hours at the region laboratory. Test sites shall be selected using ASTM Method D3665. Provide Proctor test results to the engineer within 48 hours of sampling. Provide gradation test results to the engineer within 24 hours of sampling.

C.4.5 Department Testing

C.4.5.1 General

(1) The department will conduct verification testing to validate the quality of the product and independent assurance testing to evaluate the sampling and testing. The department will provide the contractor with a listing of names and telephone numbers of all QV and IA personnel for the project, and provide test results to the contractor within 2 business days after the department obtains the sample.

C.4.5.2 Quality Verification (QV) Testing

(1) The department will have an HTCP technician, or ACT working under a certified technician, perform QV sampling and testing. Department verification testing

personnel must meet the same certification level requirements specified in C.4 for contractor testing personnel for each test result being verified. The department will notify the contractor before sampling so the contractor can observe QV sampling.

(2) The department will conduct QV tests at the minimum frequency of 30% of the required contractor tests.

(3) The department will sample randomly, at locations independent of the contractor's QC work, collecting one sample at each QV location. The department will split each QV sample, testing half for QV, and retaining the remaining half for 10 business days.

(4) The department will conduct QV tests in a separate laboratory and with separate equipment from the contractor's QC tests. The department will use the same methods specified for QC testing.

(5) The department will assess QV results by comparing to the appropriate specification limits. If QV test results conform to this special provision, the department will take no further action. If QV test results are nonconforming, the area shall be reworked until the requirements of this special provision are met.

C.4.5.3 Independent Assurance (IA)

(1) Independence assurance is unbiased testing the department performs to evaluate the department's QV and the contractor's QC sampling and testing, including personnel qualifications, procedures, and equipment. The department will perform an IA review according to the department's independent assurance program. That review may include one or more of the following:

1. Split sample testing.
2. Proficiency sample testing.
3. Witnessing sampling and testing.
4. Test equipment calibration checks.
5. Reviewing required worksheets and control charts.
6. Requesting that testing personnel perform additional sampling and testing.

(2) If the department identifies a deficiency, and after further investigation confirms it, correct that deficiency. If the contractor does not correct or fails to cooperate in resolving identified deficiencies, the engineer may suspend placement until action is taken. Resolve disputes as specified in C.4.5.4.

C.4.5.4 Dispute Resolution

(1) The engineer and contractor should make every effort to avoid conflict. If a dispute between some aspect of the contractor's and the engineer's testing program does occur, seek a solution mutually agreeable to the project personnel. The department and contractor may review the data, examine data reduction and analysis methods, evaluate sampling and testing procedures, and perform additional testing. Use ASTM E 178 to evaluate potential statistically outlying data.

(2) Production test results, and results from other process control testing, may be considered when resolving a dispute.

(3) If the project personnel cannot resolve a dispute, and the dispute affects payment or could result in incorporating non-conforming product or work, the department will use third party testing to resolve the dispute. The department's central office laboratory, or a mutually agreed on independent testing laboratory, will provide this testing. The engineer and contractor will abide by the results of the third party tests. The party in error will pay service charges incurred for testing by an independent laboratory. The department may use third party test results to evaluate the quality of questionable materials and determine the appropriate payment. The department may reject material or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

C.5 Geotechnical Information

Geotechnical data to be used in the design of the wall is given on the wall plan. After completing wall excavation of the entire reinforced soil zone, notify the department and allow the Regional Soils Engineer two working days to review the foundation.

D Measurement

The department will not measure Wall Concrete Panel Mechanically Stabilized Earth LRFD/QMP Pilot. The department will use pay plan quantity according to the Pay Plan Quantity article of these special provisions, in area by the square foot, acceptably completed, measured as the vertical area within the pay limits the contract plans show. No other measurement of quantities shall be made in the field. Unless the engineer directs in writing, a change to the limits indicated on the contract plan, wall area constructed above or below these limits will not be measured for payment.

E Payment

The department will pay for plan quantities according to the Pay Plan Quantity article at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0165.4610	Wall Concrete Panel Mechanically Stabilized Earth LRFD/QMP Pilot	SF

Payment is full compensation for supplying a design and shop drawings; preparing the site, including all necessary excavation and disposal of materials; supplying all necessary wall components to produce a functional system including cap and copings; constructing the retaining system and drainage system; providing backfill, backfilling, compacting, developing/completing/documenting the quality management program, and for performing compaction testing. Parapets, railings, abutment bodies and other items above the wall cap or coping will be paid for separately. Vehicle barrier and its support will be paid separately.

Any required topsoil, fertilizer, seeding or sodding and mulch will be paid for at the contract unit price of topsoil, fertilizer, seeding or sodding and mulch, respectively.

152. Wall Wire Faced Mechanically Stabilized Earth LRFD/QMP Pilot, Item SPV.0165.4620.

A Description

This special provision describes designing, furnishing materials and erecting a permanent earth retention system in accordance to the lines, dimension, elevations and details as shown on the plans and provided in the contract. The design life of the mechanically stabilized earth (MSE) wall and all wall components shall be 75 years minimum.

This special provision describes the quality management program (QMP) for MSE walls. A quality management program is defined as all activities, including process control, inspection, sampling and testing, and necessary adjustments in the process that are related to the construction of the MSE wall, which meets all the requirements of this provision.

This special provision describes contractor quality control (QC) sampling and testing for backfill density testing, documenting those results, and documenting related production and placement process changes. This special provision also describes department quality verification (QV), independent assurance (IA), and dispute resolution.

Chapter 8 of the department's construction and materials manual (CMM) provides additional detailed guidance for QMP work and describes sampling and testing procedures. The contractor may obtain the CMM from the department's web site at:

http://roadwaystandards.dot.wi.gov/standards/cmm/index.htm

B Materials

B.1 Proprietary Wire Faced Mechanically Stabilized Earth Wall Systems

The supplied wall system must be from the department's approved list of Wire Faced Mechanically Stabilized Earth Wall systems (Wire Faced MSE Walls).

Proprietary wall systems may be used for this work, but must conform to the requirements of this specification and be pre-approved for use by the department's Bureau of Structures, Structures Design Section. The department maintains a list of pre-approved Wire Faced Mechanically Stabilized Earth (Wire Faced MSE) Wall systems. The name of the pre-approved proprietary wall system selected shall be furnished to the engineer within 25 days after the award of contract.

To receive pre-approval, the retaining wall system must comply with all pertinent requirements of this provision. Applications for pre-approval may be submitted at any time. Applications must be prepared in accordance to the requirements of Chapter 14 of the department's current LRFD Bridge Manual. Information and assistance with the pre-approval process can be obtained by contacting the Structures Design Section in Room 601 of the Hill Farms State Transportation Building in Madison or by calling (608) 266-8494.

B.2 Design Requirements

It is the responsibility of the contractor to supply a design and supporting documentation as required by this special provision for review by the department to show the proposed wall design is in compliance with the design specifications. Four copies of the following shall be submitted to the engineer for review and acceptance no later than 60 days from the date of notification to proceed with the project.

The plans and shop drawings shall be prepared on reproducible sheets 11 inch x 17 inch, including borders. Each sheet shall have a title block in the lower right corner. The title block shall include the project identification number and structure number. Design calculations and notes shall be on 8 ½ inch x 11 inch sheets, and shall contain the project identification number, name or designation of the wall, date of preparation, initials of designer and checker, and page number at the top of the page. All plans, shop drawings, and calculations shall be signed, sealed and dated by a professional engineer licensed in the State of Wisconsin.

The design of the Wire Faced MSE Walls shall be in compliance with the *AASHTO LRFD Bridge Design Specifications 5th Edition 2010*, (AASHTO LRFD) with latest interim specifications for Mechanically Stabilized Earth Walls, WisDOT's current *Standard Specifications for Highway and Structure Construction* (Standard Specifications), Chapter 14 of the WisDOT LRFD Bridge Manual and standard engineering design procedures as determined by the department. Loads, load combinations, load and resistance factors shall be as specified in AASHTO LRFD Section 11. The associated resistance factors shall be defined in accordance to Table 11.5.6-1 LRFD.

Design and construct the walls in accordance to the lines, grades, heights and dimensions shown on the plans, as herein specified, and as directed by the engineer. If the wall is installed in front of a bridge abutment or wing, it shall also be designed to resist the applied abutment/bridge lateral forces specified on the contract plans.

Walls parallel to supporting highway traffic shall be designed for the effects of highway surcharge loading equivalent of 2 feet soil surcharge weight or 240 psf. The design shall also consider the traffic barrier impact where applicable. Walls that do not carry highway traffic shall be designed for a live load surcharge of 100 psf in accordance to Chapter 14 of the WisDOT LRFD Bridge Manual or as stated on the plans.

A maximum value of the angle of internal friction of the wall backfill material used for design shall be assumed to be 30 degrees without a certified report of tests. If a certified report of tests yields an angle of internal friction greater than 30 degrees, the larger test value may be used for design, up to a maximum value of 36 degrees.

An external stability check at critical wall stations showing Capacity Demand Ratios (CDR) for sliding, eccentricity, and bearing checks is performed by the department and are provided in the wall plans.

The design of the Wire Faced MSE Walls by the contractor shall consider the internal and compound stability of the wall mass in accordance to AASHTO LRFD 11.10.6. The internal stability shall include soil reinforcement pullout, soil reinforcement rupture, and panel-reinforcement connection failure at each soil reinforcement level. The design shall be performed using the Simplified Method or Coherent Gravity Method. Calculations for factored stresses and resistances shall be based upon assumed conditions at the end of the design life. Compound stability shall be computed for the applicable strength limits.

The minimum embedment of the Wire Faced MSE wall shall be 1 foot 6 inches, or as given on the contract plan. Frost depth shall not be considered. The wall facings shall be designed in accordance to AASHTO 11.10.2.3. A fine metallic screen and a geotextile filter fabric shall be used at the front face of the wall to retain the fines of the soil mass.

The nominal long term design strength to be used in steel reinforcement and connector design shall consider the corrosion losses and based upon conditions at the end of the design life. The minimum length of soil reinforcement measured from the back face of the wall shall be equal to 0.7 of the wall height or as shown on the plan. In no case shall this length be less than 8 feet. The soil reinforcement shall be the same length from the bottom to the top of each wall section. All soil reinforcement layers shall be connected to facings. The soil reinforcement shall extend 3 feet beyond the theoretical failure plane in all cases. The maximum vertical spacing of soil reinforcement layers shall be 24 inches. The uppermost layer of the reinforcement shall be located between 6” and 12” below the bottom of an overlying slab, footing or top of the wall. The upper layers of the soil reinforcement shall also be checked to verify that they have sufficient tensile resistance against traffic barrier impact where applicable.

Soil reinforcement shall be fabricated or designed to avoid piling, drainage structures or other obstacles in the fill without field modifications. Cutting or altering of the basic structural section of either the strip or grid at the site is prohibited unless approved by the Structures Design Section. A minimum clearance of 3” shall be maintained between any obstruction and reinforcement unless otherwise approved by the Structures Design Section. Splicing steel reinforcement is not allowed unless approved by the Structures Design Section.

Submit the following to the engineer for review: complete design calculations, explanatory notes, supporting materials, specifications, and detailed plans and shop drawings for the proposed wall system. Sample analyses and hand output shall be submitted to verify the output by the software. The design calculations and notes shall clearly indicate the Capacity to Demand Ratios (CDR) for all internal stabilities as defined in AASHTO LRFD.

The wall submittal package shall be submitted electronically to the engineer and the Structures Design Section. Submit all required information no later than 30 days prior to beginning construction of the wall. The detailed plans and shop drawings shall include all details, dimensions, quantities and cross-sections necessary to construct the walls.

B.3 Wall System Components
Materials furnished for wall system components under this contract shall conform to the requirements of this specification. All certifications related to material and components of the wall systems specified in this subsection shall be submitted to the engineer.

B.3.1 Steel Components
All steel components of permanent Wire-Faced MSE walls shall be galvanized in accordance to ASTM A-123. Provide steel reinforcement that meet the following requirements:

Welded Wire Fabric Soil Reinforcement
Provide shop fabricated welded wire reinforcement from cold drawn steel wire that has a yield stress of 65,000 psi and conforming to the minimum requirements of ASTM A-82 and be welded into the finished configuration in accordance to ASTM A-185. A minimum galvanization coating of 2 oz/ft^2 or 3.4 mils thickness is required. Replace welded wire fabric that has been damaged during handling, placing or backfilling at the direction of the engineer, at no expense to the department.

Steel Reinforcing Strips and Tie Strips
As an alternate to Welded Wire Reinforcing mesh, provide Steel Reinforcing strips or ladder Reinforcing strips or equal, hot-rolled from bars, to the required shape and dimensions meeting the requirements of ASTM A-572 Grade 65 minimum and galvanized to a minimum thickness of 3.4 mils. Tie strips shall be shop fabricated of hot-rolled steel meeting the requirements of ASTM A-1011 Grade 50.

Welded Wire Fabric Facing Panels
Provide welded wire fabric that is used to fabricate the facings of the wire-Faced wall that has a yield stress of 65,000 psi. All steel shall be shop fabricated of cold drawn steel wire conforming to the minimum requirements of ASTM A-82 and be welded into the finished configuration in accordance to ASTM A-185. Replace welded wire fabric that has been damaged during handling, placing or backfilling at the direction of the engineer, at no expense to the department.

Fasteners
Galvanized high strength bolts meeting the requirements of AASHTO M164 or equivalent.

Connector Pins and Mat Bars
Connector pins and mat bars fabricated from cold drawn steel wire meeting the requirements of ASTM A-82 and galvanized to according to ASTM 123 to a minimum thickness of 3.4 mils.

Metallic Screen
Provide a stainless steel or galvanized steel metallic screen per AASHTO M-111. The metallic screen should have an approximate opening of ¼" and be made of 0.025" (minimum) gauge wire.

B.3.2 Geotextile Filter Fabric
Geotextile filter fabric shall be used behind the metallic screen. Use geotextile as recommended by the wall manufacturer. If none is recommended, use Type DF (schedule B) as shown in standard spec 645 or as specified on the contract plans.

B.3.3 Backfill
Furnish and place backfill for Wire- Faced MSE wall as shown on the plans and as herein provided. Provide and use material that consists of natural sand or a mixture of sand with gravel, crushed gravel or crushed stone. It shall not contain foundry sand, bottom ash, blast furnace slag, crushed concrete, crushed/milled asphaltic concrete or other potentially corrosive material.

Provide material that conforms to the following gradation requirements.

Sieve Size	% by Weight Passing
1 inch	100
No. 40	0-60
No. 200	0-15

The material shall have a liquid limit not greater than 25, as per AASHTO T89, and a plasticity index not greater than 6, as per AASHTO T90.

In addition, backfill material shall meet the following requirements.

Test	Method	Value
pH	AASHTO T-289	5 – 10.0
Sulfate content	AASHTO T-290	200 ppm max.
Chloride content	AASHTO T-291	100 ppm max.
Electrical Resistivity	AASHTO T-288	3000 ohm/cm min.
Angle of Internal Friction	AASHTO T-236	30 degrees min.
Organic Content	AASHTO T-267	1.0% max.
Angle of Internal Friction	AASHTO T-236	30 degrees min. (At 95.0% of maximum density and optimum moisture, per AASHTO T99)

Prior to placement of the backfill, obtain and furnish to the engineer a certified report of test results that the backfill material complies with the requirements of this specification. This certified report of test shall be less than 6 months old. Tests will be performed by a

certified independent laboratory. Additional certified report of tests (except Angle of Internal Friction test) are required for every 2000 cubic yards of backfill used per wall. In addition, when backfill characteristics and/or sources change, a certified report of all tests will be provided for the new backfill material.

C Construction

C.1 Methods

All excavation and preparation of the foundation for the Wire-Faced Mechanically Stabilized Earth wall shall be in accordance to standard spec 206. The volume of excavation covered is limited to the width of the reinforced mass and to the depth of the bottom of the wall unless shown or noted otherwise on the plan. At the end of each working day, provide good temporary drainage such that the backfill shall not become contaminated with run-off soil or water if it is should rain. Do not stockpile or store any materials or large equipment within 10 feet of the back of the wall.

Stagger vertical joints in the welded wire facing.

C.2 Compaction

Compact all backfill behind the wall as specified in standard spec 207.3.6. Compaction of backfill within 3 feet of the back face of the wall should be accomplished using lightweight compaction devices. Use of heavy compaction equipment or vehicles should be avoided within 3 feet of the wall face.

Compact the backfill to 95.0% of maximum density as determined by AASHTO T-99, Method C.

Erect welded wire facing and other associated elements according to the wall manufacturer's construction guide. Place and compact the MSE backfill to the level of the next higher layer of MSE reinforcement before placing the MSE reinforcement or connecting it to the wall facing. Place remaining courses in vertical or battered positions as shown on the contract plans.

The MSE reinforcement shall lay horizontally on top of the most recently placed and compacted layer of MSE backfill. Bending of MSE reinforcement that result in a kink in the reinforcement shall not be allowed. If skewing of the reinforcement is required due to obstruction in the reinforced fill, the maximum skew angle shall not exceed 15 degrees from the normal position unless a greater skew angle is shown on the wall shop drawings. The adequacy of the skewed reinforcement in such a case shall be addressed by supporting calculations.

C3 Tolerances

- The overall vertical tolerance of the wall and the horizontal alignment tolerance shall not exceed 2 inches per 10 feet for permanent installations.

- Where a cast-in-place facing or a precast concrete panel facing is installed, the overall vertical tolerance shall not exceed ±1 inch or as shown on the contract plans.

- For battered wire facing, the final deviation from the design batter shall be within ±3/4 inch for each 10 feet of battered wall height.

- The offset limit between consecutive rows of facing shall not exceed one inch.

C4 Quality Management Program

C.4.1 Quality Control Plan

Submit a comprehensive written quality control plan to the engineer at or before the pre-construction meeting. Do not perform MSE wall construction work before the engineer reviews and accepts the plan. Construct the project as the plan provides.

Do not change the quality control plan without the engineer's review and acceptance. Update the plan with changes as they become effective. Provide a current copy of the plan to the engineer and post in the contractor's laboratory as changes are adopted. Ensure that the plan provides the following elements:

- An organizational chart with names, telephone numbers, current certifications and/or titles, and roles and responsibilities of QC personnel.
- The process used to disseminate QC information and corrective action efforts to the appropriate persons. Include a list of recipients, the communication process that will be used, and action time frames.
- A list of source locations, section and quarter descriptions, for all aggregate materials requiring QC testing.
- Descriptions of stockpiling and hauling methods.
- An outline for resolving a process control problem. Include responsible personnel, required documentation, and appropriate communication steps.
- Location of the QC laboratory, retained sample storage, and other documentation.
- A summary of the locations and calculated quantities to be tested under this provision.

C.4.2 Quality Control Personnel

Perform the quality control sampling, testing, and documentation required under this provision using HTCP certified technicians. Have a grading technician certified under HTCP at level I present at the each grading site during all wall backfill placement, compaction, and nuclear testing activities. Have a nuclear density technician certified under HTCP at level I perform field density and field moisture content testing.

If an Assistant Certified Technician (ACT) is performing sampling or testing, a certified technician must coordinate and take responsibility for the work an ACT performs. Have a certified technician ensure that all sampling and testing is performed correctly, analyze test results, and post resulting data. No more than one ACT can work under a single certified technician.

C.4.3 Equipment

Furnish the necessary equipment and supplies for performing quality control testing. Ensure that all testing equipment conforms to the equipment specifications applicable to the required testing methods. The engineer may inspect the measuring and testing devices to confirm both calibration and condition. Calibrate all testing equipment according to the CMM and maintain a calibration record at the laboratory.

Furnish nuclear gauges from the department's approved product list at http://www.atwoodsystems.com/materials. Ensure that the gauge manufacturer or an approved calibration service calibrates the gauge the same calendar year it is used on the project. Retain a copy of the calibration certificate with the gauge.

Conform to ASTM D 6938 and CMM 8.15 for density testing and gauge monitoring methods. Perform nuclear gauge measurements using gamma radiation in the backscatter or direct transmission position. Perform each test for 4 minutes of nuclear gauge count time.

Split each Proctor sample and identify so as to provide comparison with the department's test results. Unless the engineer directs otherwise, retain the QC split samples for 14 calendar days and promptly deliver the department's split samples to the department

C.4.4 Quality Control (QC) Testing

Perform compaction testing on the backfill. Perform the quality control sampling, testing, and documentation required under this provision using HTCP certified technicians. Have a grading technician certified under HTCP at level I present at the site during all wall backfill operations, compaction, and nuclear testing activities. Have a nuclear density technician certified under HTCP at level I, or ACT certified technician, perform field density and field moisture content testing. Conform to CMM 8.15 for testing and gauge monitoring methods. The QC technician must retain a split sample for the region and deliver it to the region laboratory within 72 hours. Conduct testing at a minimum frequency of 1 test per 50 cubic yards of backfill, or major portion thereof. A minimum of one test for every lift is required. Deliver documentation of all compaction testing results to the engineer at the time of testing.

Perform 1 gradation and 5-point Proctor test every 750 cubic yards of fill and provide the region a split sample within 72 hours at the region laboratory. Test sites shall be selected using ASTM Method D3665. Provide Proctor test results to the engineer within 48 hours of sampling. Provide gradation test results to the engineer within 24 hours of sampling.

C.4.5 Department Testing

C.4.5.1 General

(1) The department will conduct verification testing to validate the quality of the product and independent assurance testing to evaluate the sampling and testing. The department will provide the contractor with a listing of names and telephone numbers of all QV and IA personnel for the project, and provide test results to the contractor within 2 business days after the department obtains the sample.

C.4.5.2 Quality Verification (QV) Testing

(1) The department will have an HTCP technician, or ACT working under a certified technician, perform QV sampling and testing. Department verification testing personnel must meet the same certification level requirements specified in C.4 for contractor testing personnel for each test result being verified. The department will notify the contractor before sampling so the contractor can observe QV sampling.

(2) The department will conduct QV tests at the minimum frequency of 30% of the required contractor tests.

(3) The department will sample randomly, at locations independent of the contractor's QC work, collecting one sample at each QV location. The department will split each QV sample, testing half for QV, and retaining the remaining half for 10 business days.

(4) The department will conduct QV tests in a separate laboratory and with separate equipment from the contractor's QC tests. The department will use the same methods specified for QC testing.

(5) The department will assess QV results by comparing to the appropriate specification limits. If QV test results conform to this special provision, the department will take no further action. If QV test results are nonconforming, the area shall be reworked until the requirements of this special provision are met.

C.4.5.3 Independent Assurance (IA)

(1) Independence assurance is unbiased testing the department performs to evaluate the department's QV and the contractor's QC sampling and testing, including personnel qualifications, procedures, and equipment. The department will perform an IA review according to the department's independent assurance program. That review may include one or more of the following:

1. Split sample testing.
2. Proficiency sample testing.
3. Witnessing sampling and testing.
4. Test equipment calibration checks.
5. Reviewing required worksheets and control charts.
6. Requesting that testing personnel perform additional sampling and testing.

(2) If the department identifies a deficiency, and after further investigation confirms it, correct that deficiency. If the contractor does not correct or fails to cooperate in resolving identified deficiencies, the engineer may suspend placement until action is taken. Resolve disputes as specified in C.4.5.4.

C.4.5.4 Dispute Resolution

(1) The engineer and contractor should make every effort to avoid conflict. If a dispute between some aspect of the contractor's and the engineer's testing program does occur, seek a solution mutually agreeable to the project personnel. The department and contractor may review the data, examine data reduction and analysis methods, evaluate sampling and testing procedures, and perform additional testing. Use ASTM E 178 to evaluate potential statistically outlying data.

(2) Production test results, and results from other process control testing, may be considered when resolving a dispute.

(3) If the project personnel cannot resolve a dispute, and the dispute affects payment or could result in incorporating non-conforming product or work, the department will use third party testing to resolve the dispute. The department's central office laboratory, or a mutually agreed on independent testing laboratory, will provide this testing. The engineer and contractor will abide by the results of the third party tests. The party in error will pay service charges incurred for testing by an independent laboratory. The department may use third party test results to evaluate the quality of questionable materials and determine the appropriate payment. The department may reject material or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

C.5 Geotechnical Information

Geotechnical data to be used in the design of the wall is given on the wall plan. After completing wall excavation of the entire reinforced soil zone, notify the department and allow the Regional Soils Engineer two working days to review the foundation.

D Measurement

The department will not measure Wire Faced Mechanically Stabilized Earth LRFD/QMP Pilot. The department will use pay plan quantity according to the Pay Plan Quantity article of these special provisions, acceptably completed, measured as the vertical area within the pay limits the contract plans show. No other measurement of quantities shall be made in the field. Unless the engineer directs in writing, a change to the limits indicated on the contract plan, wall area constructed above or below these limits will not be measured for payment.

E Payment

The department will pay for plan quantities according to the Pay Plan Quantity article at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0165.4620	Wall Wire Faced Mechanically Stabilized Earth LRFD/QMP Pilot	SF

Payment is full compensation for supplying a design and shop drawings; preparing the site, including all necessary excavation and disposal of materials; supplying all necessary wall components to produce a functional system constructing the retaining system, including drainage system; providing backfill, backfilling, compacting, and for performing compaction testing. Parapets, railings, abutment bodies and other items above the wall cap or coping will be paid for separately. Vehicle barrier and its support will be paid separately.

Any required topsoil, fertilizer, seeding or sodding and mulch will be paid for at the contract unit price of topsoil, fertilizer, seeding or sodding and mulch, respectively.

153. Temporary Wall Wire Faced Mechanically Stabilized Earth LRFD/QMP Pilot, Item SPV.0165.4630.

A Description

This special provision describes designing, furnishing materials and erecting a temporary earth retention system in accordance to the lines, dimension, elevations and details as shown on the plans and provided in the contract. The design life of the mechanically stabilized earth (MSE) wall and all wall components shall be 3 years minimum.

This special provision describes the quality management program (QMP) for MSE walls. A quality management program is defined as all activities, including process control, inspection, sampling and testing, and necessary adjustments in the process that are related to the construction of the MSE wall, which meets all the requirements of this provision.

This special provision describes contractor quality control (QC) sampling and testing for backfill density testing, documenting those results, and documenting related production and placement process changes. This special provision also describes department quality verification (QV), independent assurance (IA), and dispute resolution.

Chapter 8 of the department's construction and materials manual (CMM) provides additional detailed guidance for QMP work and describes sampling and testing procedures. The contractor may obtain the CMM from the department's web site at:

http://roadwaystandards.dot.wi.gov/standards/cmm/index.htm

B Materials

B.1 Proprietary Wire Faced Mechanically Stabilized Earth Wall Systems

The supplied wall system must be from the department's approved list of Wire Faced Mechanically Stabilized Earth Wall systems (Wire Faced MSE Walls).

Proprietary wall systems may be used for this work, but must conform to the requirements of this specification and be pre-approved for use by the department's

Bureau of Structures, Structures Design Section. The department maintains a list of pre-approved Wire Faced Mechanically Stabilized Earth (Wire Faced MSE) Wall systems. To be eligible for use on this project, a system must have been pre-approved and added to that list prior to the bid opening date. The name of the pre-approved proprietary wall system selected shall be furnished to the engineer within 25 days after the award of contract.

To receive pre-approval, the retaining wall system must comply with all pertinent requirements of this provision. Applications for pre-approval may be submitted at any time. Applications must be prepared in accordance to the requirements of Chapter 14 of the department's LRFD Bridge Manual. Information and assistance with the pre-approval process can be obtained by contacting the Structures Design Section in Room 601 of the Hill Farms State Transportation Building in Madison or by calling (608) 266-8494.

B.2 Design Requirements

It is the responsibility of the contractor to supply a design and supporting documentation as required by this special provision, for review by the department, to show the proposed wall design is in compliance with the design specifications. Four copies of the following shall be submitted to the engineer for review and acceptance no later than 60 days from the date of notification to proceed with the project.

The plans and shop drawings shall be prepared on reproducible sheets 11 inch x 17 inch, including borders. Each sheet shall have a title block in the lower right corner. The title block shall include the project identification number and structure number. Design calculations and notes shall be on 8 ½ inch x 11 inch sheets, and shall contain the project identification number, name or designation of the wall, date of preparation, initials of designer and checker, and page number at the top of the page. All plans, shop drawings, and calculations shall be signed, sealed and dated by a professional engineer licensed in the State of Wisconsin.

The design of the Wire Faced MSE Walls shall be in compliance with the *AASHTO LRFD Bridge Design Specifications 5th Edition 2010*, (AASHTO LRFD) with latest interim specifications for Mechanically Stabilized Earth Walls, WisDOT's current *Standard Specifications for Highway and Structure Construction* (Standard Specifications), Chapter 14 of the WisDOT LRFD Bridge Manual and standard engineering design procedures as determined by the department. Loads, load combinations, load and resistance factors shall be as specified in AASHTO LRFD Section 11. The associated resistance factors shall be defined in accordance to Table 11.5.6-1 LRFD.

Design and construct the walls in accordance to the lines, grades, heights and dimensions shown on the plans, as herein specified, and as directed by the engineer. If the wall is installed in front of a bridge abutment or wing, it shall also be designed to resist the applied abutment/bridge lateral forces specified on the contract plans.

Walls parallel to supporting highway traffic shall be designed for the effects of highway surcharge loading equivalent of 2 feet soil surcharge weight or 240 psf. The design shall also consider the traffic barrier impact where applicable. Walls that do not carry highway traffic shall be designed for a live load surcharge of 100 psf in accordance to Chapter 14 of the WisDOT LRFD Bridge Manual or as stated on the plans.

A maximum value of the angle of internal friction of the wall backfill material used for design shall be assumed to be 30 degrees without a certified report of tests. If a certified report of tests yields an angle of internal friction greater than 30 degrees, the larger test value may be used for design, up to a maximum value of 36 degrees.

An external stability check at critical wall stations showing Capacity Demand Ratios (CDR) for sliding, eccentricity, and bearing checks is performed by the department and are provided on the wall plans.

The design of the Wire Faced MSE Walls by the contractor shall consider the internal and compound stability of the wall mass in accordance to AASHTO LRFD 11.10.6. The internal stability shall include soil reinforcement pullout, soil reinforcement rupture, and panel-reinforcement connection failure at each soil reinforcement level. The design shall be performed using the Simplified Method or Coherent Gravity Method. Calculations for factored stresses and resistances shall be based upon assumed conditions at the end of the design life. Compound stability shall be computed for the applicable strength limits.

The minimum embedment of the Wire Faced MSE wall shall be 1 foot 6 inches, or as given on the contract plan. Frost depth shall not be considered. The wall facings shall be designed in accordance to AASHTO 11.10.2.3. Geotextile filter fabric shall be used at the front face of the wall to retain the fines of the soil mass.

The nominal long term design strength to be used in steel reinforcement and connector design shall consider the corrosion losses and based upon conditions at the end of the design life. The minimum length of soil reinforcement measured from the back face of the wall shall be equal to 0.7 of the wall height or as shown on the plan. In no case shall this length be less than 8 feet. The soil reinforcement length shall be the same from the bottom to the top of the wall. All soil reinforcement layers shall be connected to facings. The soil reinforcement shall extend a minimum of 3.0 feet beyond the theoretical failure plane in all cases. The maximum vertical spacing of soil reinforcement layers shall be 31 inches. The uppermost layer of the reinforcement shall be located a minimum of six inches below the bottom of an overlying slab, footing or top of the wall. The upper layers of the soil reinforcement shall also be checked to verify that they have sufficient tensile resistance against traffic barrier impact where applicable.

All soil reinforcement steel required for the reinforced soil zone shall be connected to the facings. The reinforcement and the reinforcement/facing connection strength shall be designed to resist maximum factored reinforcement loads in accordance to AASHTO LRFD Section 11.10.6. Facing connection strength shall be defined as the resistance factor times the failure load. The nominal long term design strength in steel

reinforcement and connections shall be based upon assumed conditions at the end of the design life.

Soil reinforcement shall be fabricated or designed to avoid piling, drainage structures or other obstacles in the fill without field modifications. Cutting or altering of the basic structural section of either the strip or grid at the site is prohibited unless approved by the Structures Design Section. A minimum clearance of 3" shall be maintained between any obstruction and reinforcement unless otherwise approved by the Structures Design Section. Splicing steel reinforcement is not allowed, unless approved by the Structures Design Section.

Submit the following to the engineer for review: complete design calculations, explanatory notes, supporting materials, specifications, and detailed plans and shop drawings for the proposed wall system. Sample analyses and hand output shall be submitted to verify the output by the software. The design calculations and notes shall clearly indicate the Capacity to Demand Ratios (CDR) for all internal stabilities as defined in AASHTO LRFD.

The wall submittal package shall be submitted electronically to the engineer and Structures Design Section. Submit all required information no later than 30 days prior to beginning construction of the wall. The detailed plans and shop drawings shall include all details, dimensions, quantities and cross-sections necessary to construct the walls.

B.3 Wall System Components
Materials furnished for wall system components under this contract shall conform to the requirements of this specification. All certifications related to material and components of the wall systems specified in this subsection shall be submitted to the engineer.

B.3.1 Steel Components
Provide steel reinforcement that meets the following requirements:

B3.1.1 Welded Wire Fabric Soil Reinforcement
Provide shop fabricated welded wire reinforcement from cold drawn steel wire that has a yield stress of 65,000 psi and conforming to the minimum requirements of ASTM A-82 and be welded into the finished configuration in accordance to ASTM A-185.. Replace welded wire fabric that has been damaged during handling, placing or backfilling at the direction of the engineer, at no expense to the department.

B3.1.2 Steel Reinforcing Strips and Tie Strips
As an alternate to Welded Wire Reinforcing mesh, provide Steel Reinforcing strips or ladder Reinforcing strips or equal, hot-rolled from bars, to the required shape and dimensions meeting the requirements of ASTM A-572 Grade 65 minimum. Tie strips shall be shop fabricated of hot-rolled steel meeting the requirements of ASTM A-1011 Grade 50.

B3.1.3 Welded Wire Fabric Facing Panels
Provide welded wire fabric that is used to fabricate the facings of the wire-Faced wall that has a yield stress of 65,000 psi. All steel shall be shop fabricated of cold drawn steel wire conforming to the minimum requirements of ASTM A-82 and be welded into the finished configuration in accordance to ASTM A-185. Replace welded wire fabric that has been damaged during handling, placing or backfilling at the direction of the engineer, at no expense to the department.

B3.1.4 Fasteners
High strength bolts shall meet the requirements of AASHTO M164 or equivalent.

B3.1.5 Connector Pins and Mat Bars
Connector pins and mat bars fabricated from cold drawn steel wire shall meet the requirements of ASTM A-82..

B.3.2 Geotextile Filter Fabric
Use geotextile filter fabric as recommended by the wall manufacturer. If none is recommended, use Type DF (schedule B) as shown in standard spec 645 or as specified on the contract plans.

B.3.3 Backfill
Furnish and place backfill for Wire-Faced MSE wall as shown on the plans and as hereinafter provided.

Provide and use backfill that consists of natural sand or a mixture of sand with gravel, crushed gravel or crushed stone. It shall not contain recycled or milled asphalt, recycled concrete, foundry sand, bottom ash, blast furnace slag or other potentially corrosive material.

Provide material conforming to the following gradation requirements as per AASHTO T27.

Sieve Size	Percentage by Weight Passing
1 inch	100
No. 40	0 – 60
No. 200	0 – 15

The material shall have a liquid limit not greater than 25, as per AASHTO T89, and a plasticity index not greater than 6, as per AASHTO T90.

In addition, backfill material shall meet the following requirements:

Test	Method	Value
pH	AASHTO T-289	5 – 10.0
Sulfate content	AASHTO T-290	200 ppm max.
Chloride content	AASHTO T-291	100 ppm max.
Electrical Resistivity Organic Content	AASHTO T-288 AASHTO T-267	3000 ohm/cm min. 1.0% max.
Angle of Internal Friction	AASHTO T-236	30 degrees min. (At 95.0% of maximum density and optimum moisture, per AASHTO T99)

Prior to placement of the backfill, obtain and furnish to the engineer a certified report of test results that the backfill material complies with the requirements of this specification. This certified report of test shall be less than 6 months old. Tests will be performed by a certified independent laboratory. Additional certified report of tests (except Angle of Internal Friction test) are required for every 2000 cubic yards of backfill used per wall. In addition, when backfill characteristics and/or sources change, a certified report of all tests will be provided for the new backfill material.

C Construction

C.1 Excavation and Backfill

Excavation will encompass preparing the foundation and the area below the reinforcing strips in accordance to standard spec 206. The volume of excavation covered is limited to the width of the reinforced mass and to the depth of the bottom of the wall unless shown or noted otherwise on the plan. At the end of each working day, provide good temporary drainage such that the backfill shall not become contaminated with run-off soil or water if it should rain. Do not stockpile or store materials or large equipment within 10 feet of the back of the wall.

Stagger vertical joints in the welded wire facing.

C.2 Compaction

Compact all backfill behind the wall as specified in standard spec 207.3.6. Compact the backfill to 95.0% of maximum density as determined by AASHTO T-99, Method C. Ensure that adequate moisture is present in the backfill during placement and compaction to prevent segregation and to help achieve compaction.

Compaction of backfill within 3 feet of the back face of the wall should be accomplished using lightweight compaction devices. Use of heavy compaction equipment or vehicles should be avoided within 3 feet of the wall face. Compact the backfill to 95.0% of maximum density as determined by AASHTO T-99, Method C.

Erect welded wire facing and other associated elements according to the wall manufacturer's construction guide. Place and compact the MSE backfill to the level of the next higher layer of MSE reinforcement before placing the MSE reinforcement or connecting it to the wall facing. Place remaining courses in vertical or battered positions as shown on the contract plans.

The MSE reinforcement shall lay horizontally on top of the most recently placed and compacted layer of MSE backfill. Bending of MSE reinforcement that result in a kink in the reinforcement shall not be allowed. If skewing of the reinforcement is required due to obstructions in the reinforced fill, the maximum skew angle shall not exceed 15 degrees from the normal position unless a greater angle is shown on the plans. The adequacy of the skewed reinforcement in such a case shall be addressed by supporting calculations.

C.3 Tolerances

The overall vertical tolerance of the wall and the horizontal alignment tolerance shall not exceed 3 inches per 10 feet for temporary installations.

For battered wire facing, the final deviation from the design batter shall be within ±1 inch for each 10 feet of battered wall height.

C.4 Quality Management Program

C.4.1 Quality Control Plan

Submit a comprehensive written quality control plan to the engineer at or before the pre-construction meeting. Do not perform MSE wall construction work before the engineer reviews and accepts the plan. Construct the project as the plan provides.

Do not change the quality control plan without the engineer's review and acceptance. Update the plan with changes as they become effective. Provide a current copy of the plan to the engineer and post in the contractor's laboratory as changes are adopted. Ensure that the plan provides the following elements:

- An organizational chart with names, telephone numbers, current certifications and/or titles, and roles and responsibilities of QC personnel.
- The process used to disseminate QC information and corrective action efforts to the appropriate persons. Include a list of recipients, the communication process that will be used, and action time frames.
- A list of source locations, section and quarter descriptions, for all aggregate materials requiring QC testing.
- Descriptions of stockpiling and hauling methods.
- An outline for resolving a process control problem. Include responsible personnel, required documentation, and appropriate communication steps.
- Location of the QC laboratory, retained sample storage, and other documentation.
- A summary of the locations and calculated quantities to be tested under this provision.

C.4.2 Quality Control Personnel

Perform the quality control sampling, testing, and documentation required under this provision using HTCP certified technicians. Have a grading technician certified under HTCP at level I present at the each grading site during all wall backfill placement, compaction, and nuclear testing activities. Have a nuclear density technician certified under HTCP at level I perform field density and field moisture content testing.

If an Assistant Certified Technician (ACT) is performing sampling or testing, a certified technician must coordinate and take responsibility for the work an ACT performs. Have a certified technician ensure that all sampling and testing is performed correctly, analyze test results, and post resulting data. No more than one ACT can work under a single certified technician.

C.4.3 Equipment

Furnish the necessary equipment and supplies for performing quality control testing. Ensure that all testing equipment conforms to the equipment specifications applicable to the required testing methods. The engineer may inspect the measuring and testing devices to confirm both calibration and condition. Calibrate all testing equipment according to the CMM and maintain a calibration record at the laboratory.

Furnish nuclear gauges from the department's approved product list at http://www.atwoodsystems.com/materials. Ensure that the gauge manufacturer or an approved calibration service calibrates the gauge the same calendar year it is used on the project. Retain a copy of the calibration certificate with the gauge.

Conform to ASTM D 6938 and CMM 8.15 for density testing and gauge monitoring methods. Perform nuclear gauge measurements using gamma radiation in the backscatter or direct transmission position. Perform each test for 4 minutes of nuclear gauge count time.

Split each Proctor sample and identify so as to provide comparison with the department's test results. Unless the engineer directs otherwise, retain the QC split samples for 14 calendar days and promptly deliver the department's split samples to the department

C.4.4 Quality Control (QC) Testing

Perform compaction testing on the backfill. Perform the quality control sampling, testing, and documentation required under this provision using HTCP certified technicians. Have a grading technician certified under HTCP at level I present at the site during all wall backfill operations, compaction, and nuclear testing activities. Have a nuclear density technician certified under HTCP at level I, or ACT certified technician, perform field density and field moisture content testing. Conform to CMM 8.15 for testing and gauge monitoring methods. The QC technician must retain a split sample for the region and deliver it to the region laboratory within 72 hours. Conduct testing at a minimum frequency of 1 test per 50 cubic yards of backfill, or major portion thereof. A minimum of one test for every lift is required. Deliver documentation of all compaction testing results to the engineer at the time of testing.

Perform 1 gradation and 5-point Proctor test every 750 cubic yards of fill and provide the region a split sample within 72 hours at the region laboratory. Test sites shall be selected using ASTM Method D3665. Provide Proctor test results to the engineer within 48 hours of sampling. Provide gradation test results to the engineer within 24 hours of sampling.

C.4.5 Department Testing

C.4.5.1 General

(1) The department will conduct verification testing to validate the quality of the product and independent assurance testing to evaluate the sampling and testing. The department will provide the contractor with a listing of names and telephone numbers of all QV and IA personnel for the project, and provide test results to the contractor within 2 business days after the department obtains the sample.

C.4.5.2 Quality Verification (QV) Testing

(1) The department will have an HTCP technician, or ACT working under a certified technician, perform QV sampling and testing. Department verification testing personnel must meet the same certification level requirements specified in C.4 for contractor testing personnel for each test result being verified. The department will notify the contractor before sampling so the contractor can observe QV sampling.

(2) The department will conduct QV tests at the minimum frequency of 30% of the required contractor tests.

(3) The department will sample randomly, at locations independent of the contractor's QC work, collecting one sample at each QV location. The department will split each QV sample, testing half for QV, and retaining the remaining half for 10 business days.

(4) The department will conduct QV tests in a separate laboratory and with separate equipment from the contractor's QC tests. The department will use the same methods specified for QC testing.

(5) The department will assess QV results by comparing to the appropriate specification limits. If QV test results conform to this special provision, the department will take no further action. If QV test results are nonconforming, the area shall be reworked until the requirements of this special provision are met.

C.4.5.3 Independent Assurance (IA)

(1) Independence assurance is unbiased testing the department performs to evaluate the department's QV and the contractor's QC sampling and testing, including personnel qualifications, procedures, and equipment. The department will perform an IA review according to the department's independent assurance program. That review may include one or more of the following:

1. Split sample testing.
2. Proficiency sample testing.
3. Witnessing sampling and testing.
4. Test equipment calibration checks.
5. Reviewing required worksheets and control charts.
6. Requesting that testing personnel perform additional sampling and testing.

(2) If the department identifies a deficiency, and after further investigation confirms it, correct that deficiency. If the contractor does not correct or fails to cooperate in resolving identified deficiencies, the engineer may suspend placement until action is taken. Resolve disputes as specified in C.4.5.4.

C.4.5.4 Dispute Resolution

(1) The engineer and contractor should make every effort to avoid conflict. If a dispute between some aspect of the contractor's and the engineer's testing program does occur, seek a solution mutually agreeable to the project personnel. The department and contractor may review the data, examine data reduction and analysis methods, evaluate sampling and testing procedures, and perform additional testing. Use ASTM E 178 to evaluate potential statistically outlying data.

(2) Production test results, and results from other process control testing, may be considered when resolving a dispute.

(3) If the project personnel cannot resolve a dispute, and the dispute affects payment or could result in incorporating non-conforming product or work, the department will use third party testing to resolve the dispute. The department's central office laboratory, or a mutually agreed on independent testing laboratory, will provide this testing. The engineer and contractor will abide by the results of the third party tests. The party in error will pay service charges incurred for testing by an independent laboratory. The department may use third party test results to evaluate the quality of questionable materials and determine the appropriate payment. The department may reject material or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

C.5 Geotechnical Information

Geotechnical data to be used in the design of the wall is given on the wall plan. After completing wall excavation of the entire reinforced soil zone, notify the department and allow the Regional Soils Engineer two working days to review the foundation.

D Measurement

The department will not measure Temporary Wall Wire Faced Mechanically Stabilized Earth LRFD/QMP Pilot. The department will use pay plan quantity according to the Pay Plan Quantity article of these special provisions, in area by the square foot acceptably completed, measured as the vertical area within the pay limits the contract plans show. No other measurement of quantities shall be made in the field. Unless the engineer directs

in writing, a change to the limits indicated on the contract plan, wall area constructed above or below these limits will not be measured for payment.

E Payment

The department will pay for plan quantities according to the Pay Plan Quantity article of these special provisions at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0165.4630	Temporary Wall Wire Faced Mechanically Stabilized Earth LRFD/QMP Pilot	SF

Payment is full compensation for supplying a design and shop drawings; preparing the site, including all necessary excavation and disposal of materials; supplying all necessary wall components to produce a functional system; constructing the retaining system and drainage system; providing backfill, backfilling, compacting, developing/completing/documenting the quality management program, and for performing compaction testing. Parapets, railings, abutment bodies and other items above the wall will be paid for separately. Vehicle barrier and its support will be paid separately.

Any required topsoil, fertilizer, seeding or sodding and mulch will be paid for at the contract unit price of topsoil, fertilizer, seeding or sodding and mulch, respectively.

154. Prestressed Precast Concrete Wall Panel, Item SPV.0165.4640.

A Description

This special provision describes constructing precast prestressed concrete wall panels with heights and patterns as shown on the plans including product design, fabrication, transportation, erection, anchorage and other related items.

These specifications provide for prestressing concrete panels by the pretensioning method. In this method, stress the reinforcing tendons initially, then place and cure the concrete and release the stress from the anchorages to the concrete after developing specified concrete strength.

Design shall be in accordance to the AASHTO LRFD Bridge Design Specifications, Fifth Edition 2010 and applicable interim specifications. The design life of the precast concrete wall panels and all panel components shall be 75 years.

B Materials

B.1 General

Furnish materials conforming to the following:

Masonry Anchors ..... standard spec 502
Coated High Strength Bar Steel Reinforcement ..... standard spec505
Pretensioning Reinforcement ..... standard spec 503
Welded Steel Wire Fabric for Concrete Reinforcement ..... standard spec 505
Structural Steel and Miscellaneous Metals ..... standard spec 506
Elastomeric Bearing Pads ..... standard spec 506

Galvanize or furnish stainless steel materials for all hardware incorporated into the finished structures. (Not including reinforcement bars or prêtensioning reinforcement.)

B.2 Concrete

Furnish concrete as specified in standard spec 501 and standard spec716.

Ensure concrete attains a minimum 28-day compressive strength of 5000 pounds per square inch. Base all tests on 6 inch by 12-inch cylinders, or 4 inch by 8-inch cylinders, provided the engineer develops and approves a correlation factor. Mold concrete cylinders in suitable steel or plastic molds. Cure concrete cylinders according to AASHTO T 23, except cure the cylinders with the member until release strength is obtained, then cure the cylinders according to AASHTO T 23.

Make and test the cylinders and make available to the engineer all information relating to the making and testing of cylinders. Notify the engineer immediately if concrete cylinder compressive strengths are less than the required 28-day strength. Keep neatly documented records of all cylinder testing on the day of the test and make them available to the engineer. Provide copies of the tests to the engineer by contract completion.

Furnish precast prestressed concrete panels cast from air entrained concrete. Use type I, IS, I(SM), IP, II, or III cement. The contractor may replace up to 30 percent of type I, II, or III portland cement with an equal weight of fly ash conforming to standard spec 501.2.6 or slag conforming to standard spec 501.2.7. Use only one source and replacement rate for work under a single bid item. Use a department-approved air entraining admixture conforming to standard spec 501.2.2 for air entrained concrete. Use only size No. 1 coarse aggregate conforming to standard spec 501.2.5.4.

Determine proportions for the mix within the following limitations:

Water cement ratio.....not greater than 0.45
Cement content, pounds per cubic yard of concrete.....610 minimum
Air content of concrete, percent maximum.....3.5-6.0
Slump of mixed concrete, maximum.....4 inches

If the mix does not contain a high range water reducer admixture, use a department-approved set retarding admixture as specified in 501.2.3.2 at the recommended rate if the ambient air temperature is 70 degrees F (21 degrees C) or higher. The contractor may use it at their option if the ambient air temperature is less than 70 degrees F (21 degrees C).

Do not add more admixtures or water after mixing is complete.

Use admixtures that do not have significant chlorides or chlorides added during manufacture.

Use admixtures that are compatible with all ingredients of the concrete mixture.

B.3 Pretensioning Reinforcement
Use high tensile strength, 7-wire strands conforming to ASTM A 416, grade 270.

B.4 Plant Certification
Obtain all precast prestressed concrete wall panels from fabrication plants that comply with the department's plant certification program for precast prestressed concrete, unless the engineer agrees to accept these items according to the alternate procedures set forth in the department's plant certification program.

B.5 Lifting Devices
The type, number and locations of lifting devices and the method of handling the architectural precast panels is determined by the fabricator and approved by the engineer. Do not locate lifting devices in the surface of the panel facing toward the road.

B.6 Accessories and Inserts
Materials:

Shims: High-density plastic or galvanized steel, 1/8-inch thick, smooth both sides
Carbon steel plate: ASTM A 283
Welded headed studs: AWS D1.1 – Type B
Bolts, nuts, rods, washers: subsection 506.2
Joint Material: Closed cell 100% virgin chloroprene (neoprene) filler meeting 14.7.6.2 of the AASHTO LRFD Bridge Design Specifications.
Inserts: Galvanized with minimum 12 Gage steel conforming to ASTM A1011 SS GR 33 or ASTM A653 GR 33 A. Inserts anchors to have 1 1/2-inch minimum cover.

Zinc coated fabrications: Conform to ASTM 385 for fabricating zinc coated work.

C Construction
C.1 Design Requirements
Design panels and components to withstand initial handling, transportation, and erection stress limits; dead loads; wind load of 40 pounds per square foot; suction load of 20 pounds per square foot; structural backfill in cavity to 42 inches above finished grade and in front of abutments as shown in the plans; thermal stresses; and other loads specified. In addition to the above loads also design inserts and connection assembles for the loads indicated on the plans and a horizontal force equal to at least 20% of the dead weight of the panel.

Provide a minimum prestress of 250 psi and minimum temperature and shrinkage reinforcement as required by AASHTO LRFD Bridge Design Specifications Article 5.10.8.

C.2 Submittals
Erection drawings shall conform to the contract plans and consist of member piece marks and completely dimensioned size and shape of each member; plans and/or elevations

locating and defining all products furnished by manufacturer; sections and details showing connections, cast-in items and their relation to the structure; relationship to adjacent material including footings and copings; joints between members and structure; description of all loose, cast-in and field hardware; field installed anchor location drawings; erection sequences, when required to satisfy stability, and handling requirements; and all dead, live and other applicable loads used in the design.

Production drawings shall conform to the contract plans and consist of elevation view of each member; sections and details to indicate quantities and position of reinforcing steel, anchors, inserts, etc.; handling devices; dimensions and finishes; prestress for strand; concrete strengths; estimated cambers; and methods for storage and transportation.

Submit on request design calculations performed by a registered engineer licensed in the State of Wisconsin experienced in the design of precast prestressed architectural concrete.

Design modifications necessary to meet performance criteria and field coordination. Variations in details or materials shall not adversely affect the appearance, durability, or strength of units. Maintain general design concept without altering profiles and alignment.

Submit on request reports on materials, compressive strength tests on concrete and water absorption tests on units.

Submit to the engineer, for acceptance and placing on file before commencing, one set of the submittals that the contractor has checked. In addition, provide two sets to the Region office, Danielle Block, (920) 492-2212, and one set to the Bureau of Structures for acceptance and inspection purposes. Only after acceptance by the Region may fabrication commence of panels begin. The engineer may refuse prints of submittals that are not clear and legible. If the engineer requests, submit one additional copy of submittals for review. After acceptance, furnish as many copies of submittals as required.

The submittals become a part of the contract, provided any differences between sections on production drawings and sections the plans show are made only if the engineer approves and if the substitution is made at no additional expense to the department.

After initial submittal and acceptance, make no deviation from the production drawings or changes to them without the engineer’s further review and acceptance.

The engineer's review of submittals means only a review of the character and sufficiency of the details and does not relieve the contractor from responsibility in regard to errors or omissions on those drawings.

C.3 Sample Panel

Produce one standard sample panel for acceptance of color and texture. Deliver test panel(s) to the Zoo Interchange Construction Field Office, 2424 South 102nd Street, West Allis, Wisconsin 53227 or an alternate location within the Zoo Interchange project limits

designated by the engineer. Before any final panels are produced the 4 x 4 foot sample panel shall be reviewed and accepted by the engineer. If the panel is not acceptable, a second panel shall be produced and submitted for acceptance. The accepted sample panel shall remain on site and be the reference standard of quality for precast panel work on the project.

When decorative mural or relief patterns are shown on the plans and required to be cast into the face of the panels different from the general form liner surface texture or treatment, provide additional decorative relief pattern sample panels per paragraph C.9.2.

C.4 Stressing Procedure

Stressing procedure shall be in accordance to standard spec 503.3.1. Ensure all the strands of a pretensioned member are free from kinks or twists before starting tensioning operations. Ensure no strand unwinds more than one turn after starting tensioning operations.

Perform transfer of prestress to concrete after the concrete develops the minimum required strength for transfer determined by the test cylinders.

C.5 Placing and Fastening Steel

Placing and fastening steel shall be in accordance to standard spec 503.3.1.1. Place all steel units in the position the plans show and hold firmly during concrete placing and setting as specified in standard spec 505.3.

Ensure that all prestressing steel is free of dirt, grease, wax, scale, rust, oil, or other foreign material that may prevent bonding between the steel and the concrete.

C.6 Placing Concrete

Handle and place the concrete as specified in standard spec 502.

C.7 Tolerances

Cast architectural precast concrete panels to plan dimensions within the following applicable tolerances:

Overall height of panel measured at the face exposed to view.....±3/16-inch per 10 ft.
Overall width of panel measured at the face exposed to view.....±3/16-inch per 10 ft.
Total thickness .....± 1/4-inch
Structural thickness.....± 1/4-inch
Variation from square or designated skew.....± ½-inch
Local smoothness, unconcealed surfaces.....± ¼-inch per 10 ft.
Bowing..... ± Length/360, to a maximum of 1-inch
Warp (from adjacent corner).....± 1/16-inch per ft.
Location of inserts.....±½-inch
Tipping and flushness of inserts .....±¼-inch
Position of handling devices .....± 3-inch
Reinforcing steel:

Where position has structural implications or affects concrete cover .....±¼-inch
Otherwise .....± ½-inch
Location of strand:
Perpendicular to panel.....± ¼-inch
Parallel to panel.....±1-inch
Dimensions of architectural features and rustications…… .....±¼-inch

C.8 Curing
Cure concrete in accordance to standard spec 503.3.2.2.

C.9 Surface Finish
Provide architectural surface treatment, brick pattern, as detailed in the plans. Provide a rubbed surface finish on the remaining exposed surfaces of prestressed concrete panels as specified in standard spec 502.3.7.3 before shipping from the plant. Exposed face to match approved mockup panel. Use rigid molds to maintain panels within specified tolerances conforming to shape, lines, and dimensions shown on the production drawings. Construct molds to withstand vibration method selected.

Coat bottom of panels with bitumastic after cutting strands flush. Do not coat top of panels.

C.9.1 Decorative Relief Patterns
When shown on the plans, provide prestressed precast panels with decorative relief murals or patterns as shown in the plans. The exposed surfaces must match approved sample panels. Electronic files of the decorative patterns are available from Wisconsin Department of Transportation, Jeff Bohen, P.E., 141 NW Barstow Street, Waukesha, Wisconsin 53187, (262) 548-6459

C.9.2 Decorative Relief Pattern Sample Panels
When the plans call for prestress precast panels with decorative relief murals or patterns, supply to the engineer a minimum of two non-production test panels with the decorative details as shown in the plans. Deliver test panel(s) to the Zoo Interchange Construction Field Office, 2424 South 102nd Street, West Allis, Wisconsin 53227 or an alternate location within the Zoo Interchange project limits designated by the engineer. Sample panels shall be at nominally 5 feet by 5 feet or larger in size to sufficiently demonstrate the finished appearance of the decorative relief pattern shown in the plans. The submitted test panels shall fit together to demonstrate the continuation of the decorative relief murals or patterns across vertical panel joints. Obtain the engineer's acceptance of the decorative patterned sample panels, prior to production of the decorative relief patterned panels required for the contract. Only one set of accepted decorative sample panels for prestressed precast concrete wall panels is required per contract.

C.10 Erection
Erect panels without damage to shape or finish. Replace or repair damaged panels. Do not drill or form holes through the precast prestressed wall facing panels to erect panels.

An alternate method of anchoring/attaching the precast prestressed concrete wall panels may be submitted to the engineer for review and possible acceptance.

Place precast concrete wall panels so that their final position is vertical. Ensure that the vertical joint openings between panels are uniform and that decorative patterns between panels are aligned.

When panels require adjustment beyond design or tolerance criteria, discontinue affected work; advise engineer.

Verify structure, footings, anchors blocks, rods, couplers, clevises, and other anchor devices are ready to receive panels. Verify that wall panel footings are placed at the proper horizontal and vertical alignments and are ready to the receive wall panels. Place elastomeric pad and shims behind panels to ensure proper horizontal alignment. Set panels on elastomeric bearing pads and shims and install base angles at ends of panels. Place a 2 foot wide layer of Geotextile Fabric Type DF over the joint between the tilt up panel and the panel footing as shown on the plans. Shim vertical joints to get proper opening. Install and compress neoprene joint filler in the lap joints between panels. Fasten top of panels to deadman anchor block assemblies at MSE walls, as shown on the plans.

Touch-up scratched or damaged galvanized surfaces.

C.11 Erection Tolerances

Plan location from wall reference line ..... ± ½-inch
Plan location from wall alignment ..... ± ½-inch
Top elevation from nominal top elevation ..... ± 1.4-inch
Support elevation from nominal elevation:
Maximum low ..... ½-inch
Maximum high ..... ¼-inch
Plumb in any 10 ft. of panel height ..... ± ¼-inch
Maximum offset of matching edges and decorative patterns ..... ± ¼-inch
Maximum offset of matching faces ..... ± ¼-inch
Joint width (governs over joint taper) ..... ± ¼-inch
Joint taper maximum ..... ± 3/8-inch
Joint taper over 10 ft. length ..... ± ¼-inch
Differential bowing or camber as erected between
adjacent members of the same design ..... ± ¼-inch

C.12 Adjusting

Adjust panels so joint dimensions are within tolerances.

D Measurement

The department will not measure Prestressed Precast Concrete Wall Panel. The department will pay plan quantity according to the Pay Plan Quantity article of these special provisions. Any modifications to the contract quantity caused by corrections or

revisions of the original contract plan, which have been approved by the engineer, will be measured by the square foot on a vertical plane between a line at the finished grade in front of the panel and a line indicating the top of wall including wall cap or coping as shown on the plans. Unless ordered by the engineer, panel area below or above these lines will not be measured for payment.

E Payment

The department will pay for plan quantities according to the Pay Plan Quantity article at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0165.4640	Prestressed Precast Concrete Wall Panel	SF

Payment is full compensation for preparing the design drawings and calculations, production drawings, and coordination; for providing concrete and reinforcement steel for the cast-in-place concrete footings and copings, sample panels, prestressed precast wall panels, including all concrete, grout, mortar, reinforcement steel, tie bars, bearing pads, geotextile fabric Type DF, excavation, shims, masonry anchors, filler, anchor plates, angles, slotted inserts and other embedded metal; for casting and curing concrete; for jacking and prestressing; and for furnishing all handling, hauling and erecting. Deadmen, anchor blocks, rods, couplers and clevises shall be produced and supplied to the job site under this item. (Installing deadmen within the reinforced earth mass will be covered under the bid item Wall Wire Face Mechanically Stabilized Earth LRFD/QMP Pilot) Parapets, railings, abutment bodies and other items above the wall panel cap or coping will be paid for separately. Architectural Surface Treatment will be paid for separately.

155. Concrete Pavement 8-Inch Special, Item SPV.0180.0010.

A Description

This special provision describes placing colored concrete. Placement, forming, and aggregate of the concrete shall be in accordance to the pertinent requirements of standard spec 415, 416 and 501, in accordance to the details as shown on the plans, and as hereinafter provided.

B Materials

At least 15 working days prior to the start of colored concrete installation supply one 2-foot x 2-foot panel sample of the colored concrete with the proposed broom finish and troweled edge. The final color and finish is to be approved by the City of Wauwatosa, Mr. William Wehrley, (414) 479-8929, prior to placement of any colored concrete in the field.

The accepted sample shall be the standard of finish for all colored concrete work within the project.

The concrete shall be grade A2 or grade A-FA as specified in standard spec 501. All colored concrete shall originate from the same batch plant.

C Construction
Concrete shall be placed by installers experienced with colored, broom finished concrete.

Concrete pavement shall match the visual appearance of the approved sample. Concrete pavement not conforming to the color and finish of the approved sample shall be replaced at the contractor's expense.

Tie the pavement to adjacent Concrete Pavement 8-Inch using No. 4 tie bars spaced 2'-0" center to center.

C.1 Color Admixture
Use integral color admixture material specifically designed for coloring concrete.

Blend admix at plant per manufacturers specifications to achieve the indicated color. Color admixtures manufacturer and colors include:

Solomon Color – **Brick 417**
Schofield System – **Quarry Red C-32**
Davis Colors – **Brick Red 160**

Or approved equal

C.2 Finish
Finish shall be a medium brushed (broom) finish with a 6-inch smooth troweled finish as shown in the plans.

D Measurement
The department will measure Concrete Pavement 8-Inch Special in area by the square yard placed and acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0180.0010	Concrete Pavement 8-Inch Special	SY

Payment is full compensation for installation of colored concrete; excavating and preparing the foundation; providing all materials, including concrete, and expansion joints; placing, finishing, protecting and curing concrete; and for preparing sample panels.

156. Concrete Pavement Repair Special, Item SPV.0180.0011.

A Description
This special provision describes the excavating, grading, compacting, and finishing necessary to accommodate Concrete Pavement Repair Special as shown on the plans and

in accordance to the pertinent requirements of the standard specifications, and as hereinafter provided.

B Materials
Conform to standard spec 416.2.

C Construction
Conform to standard spec 416.3 and as modified in this special provision.

Inspect each drainage structure prior to Concrete Pavement Repair Special for voids under shoulder or pavement within repair area.

Backfill all subgrade voids beneath the repair area using compacted Base Aggregate Dense. Upon approval of the engineer, backfill voids that cannot be compacted with standard equipment with Backfill Controlled Low Strength.

Adjust and reset any castings for all drainage structures within the repair area prior to the placement of the Concrete Pavement.

D Measurement
The department will measure Concrete Pavement Repair Special by the square yard, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0180.0011	Concrete Pavement Repair Special	SY

Payment for the Concrete Pavement Repair Special item is full compensation for furnishing, hauling, preparing, placing, curing, and protecting all materials; for removing and disposing of existing pavements and excavated materials; for repairing asphaltic shoulders; for sawing joints; for tie bars and dowel bars provided and placed in the repair area; for sawing existing pavement for removal; for adjusting castings; for preparing the foundation; for backfilling; and for testing concrete cylinders. The department will pay for individual repairs the width of the existing concrete lane or shoulder and less than 100 feet long as Concrete Pavement Repair Special. Replace all covers that are unusable due to contractor's operations at no expense to the department.

The department will pay for Base Aggregate Dense and/or Backfill Controlled Low Strength separately under the respective bid items.

157. Waterproof Membrane, Item SPV.0180.0012.

A Description
This special provision describes furnishing and installing a layer of butyl rubber sheeting continuously along the surface of the soil outlined in Excavation, Hauling, and Reuse of

Solid Waste Soil and in accordance to the details shown on the Erosion Control Plans, as directed by the engineer, and as hereinafter provided.

B Materials

B.1 General

Furnish butyl rubber sheeting, rubber based bonding adhesive, and metal ground stakes. Before the material is installed, submit samples of the sheeting.

B.2 Butyl Rubber Sheeting

Furnish butyl rubber sheeting that is 10 mil or greater in thickness, and that is in sheets as large as feasible to keep the number of field splices to a minimum.

C Construction

C.1 General

Do not apply waterproofing membrane without written permission of the engineer. Ensure that the soil surfaces to be waterproofed are dry, and free from fins, sharp edges, oil, grease, and foreign materials. Fill or remove projections or depressions on the soil surface on which the membrane is to be applied that may cause injury to the membrane, as directed by the engineer.

During construction, exercise care to prevent injury to the waterproofing membrane due to the passage of workers and equipment.

C.2 Butyl Rubber Sheeting

Spread out a single layer of butyl rubber sheeting and draw it tight without stretching, using care to avoid trapping air. Use care in placing the sheets so that the membrane lies flat without air bubbles or wrinkles. Position each succeeding sheet to overlap the previously installed sheet by a minimum 6-inches and apply a rubber based bonding adhesive to the seams.

Make a careful inspection of the membrane for discontinuities and patch any ruptures and misaligned seams.

D Measurement

The department will measure Waterproof Membrane by the square yard, acceptably completed. The area measured for payment will be the area of the soil outlined in the Erosion Control Plan covered by the butyl rubber sheeting.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0180.0012	Waterproof Membrane	SY

Payment is full compensation for furnishing and installing the butyl rubber sheeting, bonding adhesive, and metal ground stakes.

158. Management of Solid Waste, Item SPV.0195.0010.

A General

A.1 Description

This work will conform with the requirements of standard spec 205; to pertinent parts of the Wisconsin Administrative Code, Chapters NR 700-736 Environmental Investigation and Remediation of Environmental Contamination; Wisconsin Administration Code, Chapters NR 500-538, Solid Waste; and as shown on the plans and as supplemented herein.

Solid waste within fill material may be encountered within the limits of the construction and may include materials such as pesticide-contaminated soil and soil mixed with foundry sand and slag. Contaminated waste material excavated during construction which cannot in the opinion of the environmental consultant be managed as common excavation or reused on-site will be managed as solid waste.

This work consists of excavating, segregating, temporary stockpiling, loading, hauling, and disposing of solid waste material at a DNR-approved disposal facility. The nearest DNR-approved disposal facilities are:

Waste Management Orchard Ridge Landfill
N96W13503 County Line Road
Menomonee Falls, WI 53051
Phone (262) 253-8620

Advanced Disposal Emerald Park Landfill, LLC
W124 S10629 S 124th St
Muskego, WI 53150
Phone (414) 529-1360

Provide information to the environmental consultant and engineer that indicates the DNR-approved disposal facility that the contractor will use.

A.2 Notice to the Contractor – Contaminated Soil Locations

The department and others completed testing for soil and groundwater contamination for locations within this project where excavation is required. Testing indicated that contaminated soil is present at the following locations as shown on the plans:

- Swan Boulevard Station 171+50BV to 173+00BV, from approximately 15 feet left to 130 feet right of the reference line (beneath the salt dome) from 0 to 2 feet bgs. Approximately 1,240 cubic yards (approximately 2,100 tons at an estimated 1.7 tons per cubic yard) of sodium- and chloride-contaminated soil will be excavated from this area.

- Swan Boulevard Station 173+30BV to 173+60BV, from approximately 25 feet left to 25 feet right of the reference line (beneath the salt brine tanks) from 0 to 2 feet bgs. Approximately 60 cubic yards (approximately 100 tons at an estimated 1.7 tons per cubic yard) of sodium- and chloride-contaminated soil will be excavated from this area.
- Swan Boulevard Station 178+00BV to 178+40BV, from approximately 140 to 190 feet left of the reference line (west end of second greenhouse from the south) from 0 to 1 foot bgs. Approximately 60 cubic yards (approximately 100 tons at an estimated 1.7 tons per cubic yard) of toxaphene-contaminated soil will be excavated from this area.
- Swan Boulevard Station 179+05BV to 179+45BV, from approximately 65 to 120 feet right of the reference line (east end of second greenhouse from the south) from 0 to 1 foot bgs. Approximately 60 cubic yards (approximately 100 tons at an estimated 1.7 tons per cubic yard) of toxaphene-contaminated soil will be excavated from this area.
- Roundabout Station 10+00RND to 12+76RND from reference line to approximately 40 feet left of reference line (center of roundabout) to approximately 25 feet right of reference line from 0 to an average depth of approximately 4.25 feet bgs. Approximately 2,275 cubic yards (approximately 3,900 tons at an estimated 1.7 tons per cubic yard) of lead, mercury, and petroleum-contaminated soil will be excavated from this area.
- WLC Access Road Station 6+85XFN to 7+15XFN, from the reference line to project limits left from 0 to approximately 5.5 feet bgs. Approximately 280 cubic yards (approximately 480 tons at an estimated 1.7 tons per cubic yard) of lead-contaminated soil will be excavated from this area.
- Underwood Parkway Station 219+10UDW to 219+50UDW, from approximately 60 to 90 feet left of the reference line from 0 to approximately 4 feet bgs. Approximately 120 cubic yards (approximately 200 tons at an estimated 1.7 tons per cubic yard) of lead-contaminated soil will be excavated from this area.

Directly load soil excavated by the project at the above locations into trucks that will transport the soil to a WDNR-licensed landfill facility for landfill disposal.

If obviously contaminated soils or other signs of non-exempt solid waste are encountered elsewhere on the project, terminate excavation activities in the area and notify the engineer.

No active groundwater monitoring wells were observed within the construction limits. If active groundwater monitoring wells are encountered during construction, notify the engineer and protect them to maintain their integrity. The environmental consultant will determine if monitoring wells need to be maintained. For monitoring wells that do need to be maintained, adjust the wells that do not conflict with structures or curb and gutter to be flush with the final grade. For wells that conflict with the previously mentioned items or if monitoring wells are not required to be maintained, they will be abandoned by others.

A.3 Excavation Management Plan Approval

The excavation management plan for this project has been designed to minimize the off-site disposal of impacted material. The excavation management plan, including these special provisions, has been developed in cooperation with the WDNR. The WDNR concurrence letter is on file at the Wisconsin Department of Transportation. For further information regarding previous investigation and remediation activities in these areas contact:

Name:	Michael Cape, P.G.
Address:	141 NW Barstow Street, Waukesha, WI 53187-0798
Phone:	(262) 548-5930
Fax:	(262) 548-6891
E-mail:	michael.cape@dot.state.wi.us

A.4 Coordination

Coordinate work under this contract with the environment consultant:

Consultant:	TRC Environmental Corporation
Address:	150 N. Patrick Blvd. Ste. 180, Brookfield, WI 53045
Contact:	Mr. Ken Yass, P.E., CHMM
Phone:	(262) 901-2145
Fax:	(262) 879-1220
E-mail:	kyass@trcsolutions.com

The role of the environmental consultant will be limited to:

- Determining the location and limits of contaminated soil to be excavated based on soil analytical results from previous investigations, visual observations, and field screening of soil that is excavated;
- Identifying contaminated soils to be hauled to the landfill facility;
- Documenting that activities associated with management of contaminated soil are in conformance with the contaminated soil management methods for this project as specified herein; and
- Obtaining the necessary approvals for disposal of contaminated soil from the landfill facility.

Provide at least a 14-calendar day notice of the preconstruction conference date to the environmental consultant. At the preconstruction conference, provide a schedule for all excavation activities in the areas of contamination to the environmental consultant. Identify the DNR licensed landfill facility that will be used for disposal of contaminated soils, and provide this information to the environmental consultant no later than 15 calendar days prior to commencement of excavation activities in the contaminated areas or at the preconstruction conference, whichever comes first. The environmental consultant will be responsible for obtaining the necessary approvals from the landfill facility for disposal of contaminated soils.

Coordinate with the environmental consultant to ensure that the environmental consultant is present during excavation activities in the contaminated areas. Notify the environmental consultant at least three calendar days prior to commencement of excavation activities in the contaminated areas. Perform excavation work in the contaminated areas on a continuous basis until excavation work is completed. Do not transport contaminated soil offsite without prior approval from the environmental consultant.

A.4 Health and Safety Requirements
Supplement standard spec 107.1 with the following:

During excavation activities, expect to encounter soil contaminated with sodium, chloride, metals, foundry wastes, pesticides and/or petroleum volatile organic compounds. Site workers taking part in activities that will result in the reasonable probability of exposure to safety and health hazards associated with hazardous materials shall have completed health and safety training that meets the Occupational Safety and Health Administration (OSHA) requirements for Hazardous Waste Operations and Emergency Response (HAZWOPER), as provided in 29 CFR 1910.120.

Prepare a site-specific Health and Safety Plan, and develop, delineate and enforce the health and safety exclusion zones for each contaminated site location as required by 29 CFR 1910.120. Submit the site-specific health and safety plan and written documentation of up-to-date OSHA training to the engineer prior to the start of work.

B (Vacant)

C Construction
Supplement standard spec 205.3 with the following:

Control operations in the contaminated areas to minimize the quantity of contaminated soil excavated.

The environmental consultant will periodically monitor soil excavated from the contaminated areas identified in A.2 above. The environmental consultant will evaluate excavated soil based on field screening results, visual observations, and soil analytical results from previous environmental investigations. Assist the environmental consultant in collecting soil samples for evaluation using excavation equipment. The sampling frequency shall be a maximum of one sample for every 20 cubic yards excavated.

Directly load and haul soils designated by the environmental consultant for offsite disposal to the DNR approved landfill facility. Use loading and hauling practices that are appropriate to prevent any spills or releases of petroleum-contaminated soils or residues. Prior to transport, sufficiently dewater soils designated for off-site disposal so as not to contain free liquids.

Verify that the vehicles used to transport material are licensed for such activity in accordance to applicable state and federal regulations. Obtain the necessary disposal facility approvals and DNR approvals for disposal. Do not transport regulated solid waste off-site without obtaining the approval of the environmental consultant and engineer and notifying the disposal facility.

During excavations in the areas of known contamination, larger chunks of clean concrete (~2 cubic feet), asphalt and bricks will be segregated from the fill, to the extent practical and managed as common excavation. Under NR 500.08 this material is exempt from licensing and requirements of Wisconsin Administrative Code NR 500-538 of the solid waste regulations, and will be reused as designated by the engineer as fill on the project, or it will be disposed of off-site at the contractor's disposal site(s).

Given the relatively shallow depth of planned hot spot excavation, excavation dewatering is not anticipated.

D Measurement

The department will measure Management of Solid Waste by the ton of waste accepted by the disposal facility and as documented by weight tickets, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0195.0010	Management of Solid Waste	Ton

Payment is full compensation for excavating, segregating, loading, hauling, and landfill disposal of contaminated soil; obtaining solid waste collection and transportation service operating licenses; assisting in the collection of soil samples for field evaluation; and for dewatering of soils prior to transport, if necessary.

ADDITIONAL SPECIAL PROVISION 4

Payment to First-Tier Subcontractors

Within 10 calendar days of receiving a progress payment for work completed by a subcontractor, pay the subcontractor for that work. The prime contractor may withhold payment to a subcontractor if, within 10 calendar days of receipt of that progress payment, the prime contractor provides written notification to the subcontractor and the department documenting the reasons for withholding payment.

The prime contractor may also withhold retainage from payments due subcontractors. Reduce the total amount retained from all first-tier subcontractors to no more than the department retains within 10 calendar days of the department releasing retainage.

Payment to Lower-Tier Subcontractors

Ensure that subcontracting agreements at all tiers provide prompt payment and release of retainage rights to lower-tier subcontractors that parallel those granted first-tier subcontractors in this provision.

ADDITIONAL SPECIAL PROVISION 6
ASP 6 - Modifications to the standard specifications

Make the following revisions to the 2013 edition of the standard specifications:

106.3.4.3.1 General

Replace paragraph two with the following effective with the November 2012 letting:

(2) Required sampling and testing methodologies and documentation are specified in CMM chapter 8.

(3) If disputed, approval of materials and components, as well as acceptance of the work incorporating those materials or components, is subject to review under the QMP dispute resolution process.

107.17.3 Railroad Insurance Requirements

Replace the entire text with the following effective with the August 2012 letting:

(1) If required by the special provisions, provide or arrange for a subcontractor to provide railroad protective liability insurance in addition to the types and limits of insurance required in 107.26. Keep railroad protective liability insurance coverage in force until completing all work, under or incidental to the contract, on the railroad right of way or premises of the railroad and until the department has accepted the work as specified in 105.11.2.4.

(2) Provide railroad protective liability insurance coverage written as specified in 23 CFR part 646 subpart A. Provide a separate policy for each railroad owning tracks on the project. Ensure that the railroad protective liability insurance policies provide the following minimum limits of coverage:

1. Coverage A, bodily injury liability and property damage liability; $2 million per occurrence.
2. Coverage B, physical damage to property liability; $2 million per occurrence.
3. An annual aggregate amount of $6 million that shall apply separately to each policy renewal or extension.

(3) Obtain coverage from insurance companies licensed to do business in Wisconsin that have an A.M. Best rating of A- or better. The cost of providing the required insurance coverage and limits is incidental to the contract. The department will make no additional or special payment for providing insurance.

(4) Submit the following to each railroad owning tracks on the project as evidence of that railroad's respective coverage:

1. A certificate of insurance for the types and limits of insurance specified in 107.26.
2. The railroad protective liability insurance policy or other acceptable documentation to the railroad company.

(5) Submit the following to the region as evidence of the required coverage:

1. A copy of the letter to the railroad company transmitting the submittal documents specified in 107.17.3(4).
2. A certificate of insurance for the required railroad protective liability coverages.

(6) Do not begin work on the right of way or premises of the railroad company until the region receives the submittals specified in 107.17.3(5) and notification from the railroad company that the contractor has provided sufficient insurance information to begin work.

(7) Notify the railroad and the region immediately upon cancellation or initiating cancellation, whichever is earlier, or any material change in coverage. Cease operations within 50 feet of the railroad right of way immediately if insurance is cancelled or reduced. Do not resume operations until the required coverage is in force.

460.2.8.3.1.4 Department Verification Testing Requirements

Replace paragraph four with the following effective with the December 2012 letting:

(4) The department will randomly test each design mixture at the following minimum frequency:

FOR TONNAGES TOTALING:	
Less than 501 tons	no tests required
From 501 to 5,000 tons	one test
More than 5,000 tons	add one test for each additional 5,000-ton increment

501.2.1 Portland Cement

Replace paragraph one with the following effective with the March 2013 letting:

(1) Use cement conforming to ASTM specifications as follows:

- Type I portland cement; ASTM C150.
- Type II portland cement; ASTM C150.
- Type III portland cement; ASTM C150, for high early strength.
- Type IP portland-pozzolan cement; ASTM C595, except maximum loss on ignition is 2.0 percent.
- Type IS portland blast-furnace slag cement; ASTM C595.
- Type IL portland-limestone cement; ASTM C595, except maximum nominal limestone content is 10 percent with no individual test result exceeding 12.0 percent.

501.2.5.5 Sampling and Testing

Replace the entire text with the following effective with the January 2013 letting:

(1) Sample and test aggregates for concrete according to the following:

Sampling aggregates	AASHTO T2
Lightweight pieces in aggregate	AASHTO T113
Material finer than No. 200 sieve	AASHTO T11
Unit weight of aggregate	AASHTO T19
Organic impurities in sands	AASHTO T21
Sieve analysis of aggregates	AASHTO T27
Effect of organic impurities in fine aggregate	AASHTO T71
Los Angeles abrasion of coarse aggregate	AASHTO T96
Freeze-thaw soundness of coarse aggregate	AASHTO T103
Sodium sulfate soundness of aggregates	AASHTO T104
Specific gravity and absorption of fine aggregate	AASHTO T84
Specific gravity and absorption of coarse aggregate	AASHTO T85
Flat & elongated pieces based on a 3:1 ratio	ASTM D4791[1]
Sampling fresh concrete	AASHTO R60
Making and curing concrete compressive strength test specimens	AASHTO T23
Compressive strength of molded concrete cylinders	AASHTO T22

[1] As modified in CMM 8-60.

501.2.6 Fly Ash

Replace paragraph three with the following effective with the March 2013 letting:

(3) Test fly ash using a recognized laboratory, as defined in 501.2.2(1), starting at least 30 days before its proposed use, and continuing at ASTM-required frequencies as the work progresses. The manufacturer shall test the chemical and physical properties listed in tables 1 and 2 of ASTM C618 at the frequencies and by the test methods prescribed in ASTM C311.

501.3.1.1.1 Air-Entrained Concrete

Replace paragraph one with the following effective with the March 2013 letting:

(1) Prepare air-entrained concrete with type I, IL, II, IS, or IP portland cement and sufficient air-entraining admixture to produce concrete with the air content specified in 501.3.2.4.

503.2.2 Concrete

Replace paragraph five with the following effective with the March 2013 letting:

(5) Furnish prestressed concrete members cast from air-entrained concrete, except I-type girders may use non-air-entrained concrete. Use type I, IL, IS, , IP, II, or III portland cement. The contractor may replace up to 30 percent of type I, IL, II, or III portland cement with an equal weight of fly ash, slag, or a combination of fly ash and slag, except for prestressed box girders and slabs, the contractor shall replace 20-30 percent of the cement with fly ash, slag, or a combination of fly ash and slag. Ensure that fly ash conforms to 501.2.6 and slag conforms to 501.2.7. Use only one source and replacement rate for work under a single bid item. Use a department-approved air-entraining admixture conforming to 501.2.2 for air-entrained concrete. Use only size No. 1 coarse aggregate conforming to 501.2.5.4.

506.3.22 Shop Inspection

Replace paragraph one with the following effective with the July 2010 letting:

(1) The engineer or an independent inspection agency under department contract may inspect all structural steel and miscellaneous metals furnished. The department will provide the contractor with monthly consultant inspection invoices and identify any quality deficiencies at the fabrication facility.

506.5 Payment

Add paragraph nine as follows effective with the June 2010 letting:

(9) The department will limit costs for inspections conducted under 506.3.2 to $0.05 per pound of material and deduct costs in excess of that amount from payment due the contractor. The department will determine costs for in-house inspections based on hourly rates for department staff plus overhead and use invoiced costs for contracted-out inspections. The department will administer deductions for the contractor's share of the total inspection cost under the Excess Costs For Fabrication Shop Inspection administrative item.

507.2.2.1 General

Replace paragraph four with the following effective with the December 2012 letting:

(4) Ensure that there are no unsound knots or knot holes. Also ensure that there are no tight knots of a diameter exceeding one-quarter of the greater dimension at the point where they occur. Measure a knot by taking its diameter at right angles to the length of the timber. Ensure that the sum of sizes of all knots in any one-foot length does not exceed 2 times the size of the largest allowed single knot. The engineer will treat cluster knots as if they were a single knot. A cluster knot is 2 or more knots grouped together, with the fibers of the wood deflected around the entire unit.

512.3.1 Driving and Cutting Off

Replace the entire text with the following effective with the December 2012 letting:

512.3.1.1 General

(1) Coordinate driving operations to prevent damage or displacement of concrete in substructure units or damage to adjacent facilities due to vibrations.

(2) Drive sheeting with a variation of 1/4 inch or less per foot from the vertical or from the batter the plans show. Ensure that the sheetpiles are within 6 inches of the plan position after driving. Do not damage sheetpiles attempting to correct for misalignment.

(3) Remove and replace, or otherwise correct, sheetpiles the engineer deems unacceptable under 105.3. Submit details of planned corrections to the engineer for review and approval before initiating any corrective actions.

(4) Drive sheetpiles to or beyond the required tip elevation the plans show.

512.3.1.2 Driving System

(1) Furnish a sheetpile driving system capable of driving the sheetpiles to the required minimum tip elevation the plans show.

(2) The engineer may order the contractor to remove a pile driving system component from service if it causes insufficient energy transfer or damages the sheetpiles. Do not return a component to service until the engineer determines that it has been satisfactorily repaired or adjusted.

(3) Drive sheetpiles with diesel, air, steam, gravity, hydraulic, or vibratory hammers.

512.3.1.3 Cut-Offs

(1) Cut off sheetpiles at the elevations the plans show or as the engineer directs. Pile cut-offs become the property of the contractor. Dispose of cut-offs not incorporated into the work.

518.2.1 General

Replace paragraph one with the following effective with the March 2013 letting:

(1) Furnish portland cement and water as specified in 501.2. Unless the engineer allows an alternate, use either type I, IL, IS, , or IP portland cement.

526.3.3 Temporary Structures

Replace paragraphs two through four with the following effective with the January 2013 letting:

(2) Inspect temporary structures conforming to the National Bridge Inspection Standards (NBIS) and the department's structure inspection manual before opening to traffic. Perform additional inspections, as the department's structure inspection manual requires, based on structure type and time in service. Submit inspection reports on department form DT2007 to the engineer and electronic copies to the department's bureau of structures maintenance section. Ensure that a department-certified active team leader, listed online in the department's highway structures information system (HSIS), performs the inspections.

(3) Maintain temporary structures and approaches in place until no longer needed. Unless the engineer directs otherwise, completely remove and dispose of as specified in 203.3.4. Contractor-furnished materials remain the contractor's property upon removal.

614.2.5 Wood Posts and Offset Blocks

Retitle and replace the entire text with the following effective with the July 2012 letting:

614.2.5 Posts and Offset Blocks

614.2.5.1 Wood Posts and Offset Blocks

(1) Furnish sawed posts and offset blocks of one of the following species:

Douglas fir	Southern pine	Ponderosa pine	Jack pine	White pine
Red pine	Western hemlock	Western larch	Hem-fir	Oak

(2) Ensure that posts are the size the plans show and conform to the nominal and minimum dimensions tabulated in 507.2.2.3. The contractor does not have to surface the posts. Provide posts of the net length the plans show after setting and cut off.

(3) Use stress graded posts rated at 1200 psi f_b or higher. Determine the stress grade rating for douglas fir, western larch, and southern pine as specified in 507.2.2.4.

(4) For hem-fir, hemlock, red pine, white pine, jack pine, ponderosa pine, and oak conform to the following:

TABLE 614-1 PROPERTIES FOR WOOD POSTS AND BLOCKS

SPECIES			WESTERN HEMLOCK, HEM-FIR, RED PINE, WHITE PINE, JACK PINE, PONDEROSA PINE		OAK	
MAXIMUM SLOPE OF GRAIN			1 in 15		1 in 12	
NOMINAL WIDTH OF FACE			6"	8"	6"	8"
SHAKES, CHECKS, AND SPLITS		GREEN	1"	1 3/8"	2 3/8"	3 1/8"
		SEASONED	1 1/2"	2"	2 5/8"	3 1/2"
MAXIMUM WANE			1"	1 3/8"	1 1/8"	1 5/8"
MAXIMUM ALLOWABLE KNOTS	NARROW FACE	MIDDLE 1/3 OF LENGTH	1 3/8"	1 5/8"	2 1/8"	2 3/8"
		END[1]	2 3/4"	3 1/4"	4 1/4"	4 3/4"
		SUM IN MIDDLE 1/2 OF LENGTH[2]	11"	13"	17"	19
	WIDE FACE	EDGE KNOT N MIDDLE 1/3 OF LENGTH	1 3/8"	1 5/8"		
		EDGE KNOT AT END[1]	2 3/4" 7	3 1/4"		
		CENTERLINE	1 3/8"	1 7/8"	2 1/4"	2 7/8"
		SUM IN MIDDLE 1/2 OF LENGTH	5 1/2"	7 1/2"	9"	11 1/2"

[1] But do not exceed the maximum allowable knot on the centerline of the wide face of the same piece.

[2] But do not exceed 4 times the maximum allowable knot on the centerline of the wide face of the same piece.

(5) Pressure treat posts and offset blocks as specified in 507.2.2.6. Use one of the oil-soluble preservatives or chromated copper arsenate conforming to 507.2.3. Use the same material for offset blocks and posts and treat material used in each continuous installation with the same type of preservative.

614.2.5.2 Steel Posts

(1) Furnish steel posts conforming to AASHTO M270 Grade 36 and galvanized according to AASTHO M111.

614.2.5.3 Plastic Offset Blocks

(1) Furnish plastic offset blocks from the department's approved products list.

614.3.1 General

Replace the entire text with the following effective with the July 2012 letting:

(1) Paint the ends of cut-off galvanized posts, rail, bolts, cut or drilled surfaces of galvanized components, and areas of damaged zinc coating with 2 coats of zinc dust/zinc oxide paint. Clean the damaged and adjacent areas thoroughly before applying paint.

(2) Apply 2 coats of wood preservative to cut surfaces of wood components. Use the same preservative originally used to treat that component or use a 2-percent solution of copper naphthenate conforming to AWPA Standard P8 or P36.

614.3.2.1 Installing Posts

Replace paragraph four with the following effective with the July 2012 letting:

(4) Cut post tops to the finished elevation the plans show.

628.2.13 Rock Bags

Replace paragraph one with the following effective with the November 2012 letting:

(1) Furnish rock bags made of a porous, ultraviolet resistant, high-density polyethylene or geotextile fabric that will retain 70% of its original strength after 500 hours of exposure according to ASTM D4355 and a minimum in-place filled size of 18-inches long by 12-inches wide by 6-inches high. Ensure that the fabric conforms to the following:

TEST REQUIREMENT	METHOD	VALUE
Minimum Tensile	ASTM D4632	
Machine direction		70 lb minimum
Cross direction		40 lb minimum
Elongation	ASTM D4632	
Machine direction		20% minimum
Cross direction		10 % min
Puncture	ASTM 4833	65 lbs minimum
Minimum Apparent Opening		0.0234 inches (No. 30 sieve)
Maximum Apparent Opening		0.0787 inches (No. 10 sieve)

639.2.1 General

Replace paragraph two with the following effective with the March 2013 letting:

(2) For grout use fine aggregate conforming to 501.2.5.3 and type I, IL, IS, or IP portland cement.

649.3.1 General

Replace paragraphs three and four with the following effective with the March 2013 letting:

(3) For pavements open to all traffic, apply centerline and no-passing barrier line markings as follows:

- On intermediate pavement layers, including milled surfaces, on the same day the pavement is placed or milled.
- On the upper layer of pavement, on the same day the pavement is placed unless the contractor applies permanent marking on the same day the pavement is placed.

If weather conditions preclude same-day application, apply as soon as weather allows. Do not resume next-day construction operations until these markings are completed unless the engineer allows otherwise.

(4) If required to apply no passing zone temporary pavement marking, reference the beginning and end of all existing no-passing barrier lines. Apply temporary no-passing barrier lines at those existing locations. If the contract contains the Locating No-Passing Zones bid item, relocate the no-passing zones as specified in section 648 for permanent marking.

701.4.2 Verification Testing

Replace paragraph two with the following effective with the December 2012 letting:

(2) The department will sample randomly at locations independent of the contractor's QC tests and use separate equipment and laboratories. The department will conduct a minimum of one verification test for each 5 contractor QC tests unless specific QMP provisions specify otherwise.

715.2.3.1 Pavements

Replace paragraph two with the following effective with the March 2013 letting:

(2) Provide a minimum cement content of 565 pounds per cubic yard, except if using type I, IL, or III portland cement in a mix where the geologic composition of the coarse aggregate is primarily igneous or metamorphic materials, provide a minimum cement content of 660 pounds per cubic yard.

715.3.1.3 Department Verification Testing

Replace paragraph one with the following effective with the December 2012 letting:

(1) The department will perform verification testing as specified in 701.4.2 except as follows:

- Air content, slump, and temperature: a minimum of 1 verification test per lot.
- Compressive strength: a minimum of 1 verification test per lot.

Errata

Make the following corrections to the 2013 edition of the standard specifications:

102.12 Public Opening of Proposals

Correct 102.12(1) errata by changing htm to shtm in the web link.

(1) The department will publicly open proposals at the time and place indicated in the notice to contractors. The department will post the total bid for each proposal on the Bid Express web site beginning at 9:30 AM except as specified in 102.8. If a proposal has no total bid shown, the department will not post the bid. After verification for accuracy under 103.1, the department will post bid totals on the department's HCCI web site.

http://roadwaystandards.dot.wi.gov/hcci/bid-letting/index.shtm

107.22 Contractor's Responsibility for Utility Facilities, Property, and Services

Correct errata by eliminating references to the department. Costs are determined by statute.

(3) If the contractor damages or interrupts service, the contractor shall notify the utility promptly. Coordinate and cooperate with the utility in the repair of the facility. Determine who is responsible for repair costs according to Wisconsin statutes 66.0831 and 182.0175(2).

204.3.2.2 Removing Items

Correct errata by changing the reference from 490.3.2 to 490.3.

(5) Under the Removing Asphaltic Surface Milling bid item, remove and dispose of existing asphaltic pavement or surfacing by milling at the location and to the depth the plans show. Mill the asphaltic pavement or surfacing as specified for milling salvaged asphaltic pavement in 490.3.

501.2.9 Concrete Curing Materials.

Correct errata by changing AASHTO M171 to ASTM C171.

(4) Furnish polyethylene-coated burlap conforming to ASTM C171 for white burlap-polyethylene sheets.

506.2.6.5.2 Pad Construction

Correct errata by changing ASTM A570 to ASTM A1011.

(4) For the internal steel plates use rolled mild steel conforming to ASTM A36, or ASTM A1011 grade

512.3.3 Painting

Correct errata by changing 511.3.5 to 550.3.11.3.

(1) Paint permanent steel sheet piling as specified for painting steel piling in 550.3.11.3.

513.2.2.8 Toggle Bolts

Correct errata by changing ASTM A570 to ASTM A1011.

(1) Use toggle bolts made of steel, conforming to the plans. Make the assembly from the material specified below:

Toggle bolt and pin ..... Cold finished steel heat-treated Brinell 311-363 ASTM A354.

Toggle washer ..... Hot rolled steel ASTM A1011. Manufacturer's standard washer.

Spacer nut ..... Grade 1213, ASTM A108. Cold finished steel heat-treated ASTM A325.

660.2.1 General

Correct errata by changing section 511 to 550.

(1) Furnish materials conforming to the following:

Concrete ..... section 501

Concrete bridges ..... section 502

Luminaires ..... section 659

Steel piling ..... section 550

Steel reinforcement ..... section 505

660.3.2.3 Pile Type Foundations

Correct errata by changing section 511 to 550.

(1) Drive piles as specified in for steel piling in section 550.

701.3 Contractor Testing

Correct errata by updating AASHTO T141 to AASHTO R60 and changing AASHTO T309 to ASTM C1064.

(1) Perform contract required QC tests for samples randomly located according to CMM 8-30. Also perform other tests as necessary to control production and construction processes, and additional testing enumerated in the contractor's quality control plan or that the engineer directs. Use test methods as follows:

TABLE 701-2 TESTING STANDARDS

TEST	TEST STANDARD
Washed P 200 analysis	AASHTO T11[1]
Sieve analysis of fine and coarse aggregate	AASHTO T27[1]
Aggregate moisture	AASHTO T255[1]
Sampling freshly mixed concrete	AASHTO R60
Air content of fresh concrete	AASHTO T152[2]
Concrete slump	AASHTO T119[2]
Concrete temperature	ASTM C1064
Concrete compressive strength	AASHTO T22
Making and curing concrete cylinders	AASHTO T23
Standard moist curing for concrete cylinders	AASHTO M201

[1] As modified in CMM 8-60.

[2] As modified in CMM 8-70.

ADDITIONAL SPECIAL PROVISION 7

A. Reporting 1st Tier and DBE Payments During Construction

1. Comply with reporting requirements specified in the department's Civil Rights Compliance, Contractor's User Manual, Sublets and Payments.
2. Report payments to all DBE firms within 10 calendar days of receipt of a progress payment by the department or a contractor for work performed, materials furnished, or materials stockpiled by a DBE firm. Report the payment as specified in A(1) for all work satisfactorily performed and for all materials furnished or stockpiled.
3. Report payments to all first tier subcontractor relationships within 10 calendar days of receipt of a progress payment by the department for work performed. Report the payment as specified in A(1) for all work satisfactorily performed.
4. All tiers shall report payments as necessary to comply with the DBE payment requirement as specified in A(2).
5. Require all first tier relationships, DBE firms and all other tier relationships necessary to comply with the DBE payment requirement in receipt of a progress payment by contractor to acknowledge receipt of payment as specified in A(1), (2), (3) and (4).
6. All agreements made by a contractor shall include the provisions in A(1), (2), (3), (4) and (5), and shall be binding on all first tier subcontractor relationships and all contractors and subcontractors utilizing DBE firms on the project.

B. Costs for conforming to this special provision are incidental to the contract.

ADDITIONAL SPECIAL PROVISION 9
Electronic Certified Payroll Submittal

(1) Use the department's Civil Rights Compliance System (CRCS) to submit certified payrolls electronically. Details are available online through the department's highway construction contractor information (HCCI) site on the Labor, Wages, and EEO Information page at: http://roadwaystandards.dot.wi.gov/hcci/labor-wages-eeo/index.shtm

(2) Ensure that all tiers of subcontractors, as well as all trucking firms, submit their weekly certified payrolls electronically through CRCS. These payrolls are due within seven calendar days following the close of the payroll period. Every firm providing physical labor towards completing the project is a subcontractor under this special provision.

(3) Upon receipt of contract execution, promptly make all affected firms aware of the requirements under this special provision and arrange for them to receive CRCS training as they are about to begin payrolls. The department will provide training either in a classroom setting at one of our regional offices or by telephone. Contact Tess Mulrooney at 608-267-4489 to schedule the training.

(4) The department will reject all paper submittals of forms DT-1816 and DT-1929 for information required under this special provision. All costs for conforming to this special provision are incidental to the contract.

(5) Firms wishing to export payroll data from their computer system into CRCS should have their payroll coordinator send several sample electronic files to Tess two months before a payroll needs to be submitted. Not every contractor's payroll system is capable of producing export files. For details, see pages 17-22 of the CRCS System Background Information manual available online on the Labor, Wages, and EEO Information page at: http://roadwaystandards.dot.wi.gov/hcci/labor-wages-eeo/crc-basic-info.pdf

Effective with September 2004 Letting

WISCONSIN DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS AND TRANSPORTATION FACILITIES

SUPPLEMENTAL REQUIRED CONTRACT PROVISIONS

I. Wage Rates, Hours of labor and payment of Wages
II. Payroll Requirements
III. Postings at the Site of the Work
IV. Affidavits
V. Wage Rate Redistribution
VI. Additional Classifications

I. WAGE RATES, HOURS OF LABOR AND PAYMENT OF WAGES

The schedule of "Minimum Wage Rates" attached hereto and made a part hereof furnishes the prevailing wage rates that have been determined pursuant to Section 103.50 of the Wisconsin Statutes. These wage rates are the minimum required to be paid to the various laborers, workers, mechanics and truck drivers employed by contractors and subcontractors on the construction work embraced by the contract and subject to prevailing hours and wages under Section 103.50, Stats. If necessary to employ laborers, workers, mechanics or truck drivers whose classification is not listed on the schedule, they shall be paid at rates conformable to those listed for similar classifications. Apprentices shall be paid at rates not less than those prescribed in their state indenture contacts.

While the wage rates shown are the minimum rates required by the contract to be paid during its life, this in not a representation that labor can be obtained at these rates. It is the responsibility of bidders to inform themselves as to the local labor conditions and prospective changes or adjustments of wage rates. No increase in the contract price shall be allowed or authorized on account of the payment of wage rates in excess of those listed herein.

Pursuant to Section 103.50 of the Wisconsin Statutes, the prevailing hours of labor have been determined to be up to 10 hours per day and 40 hours per calendar week Monday through Friday. If any laborer, worker, mechanic or truck driver is permitted or required to work more than the prevailing number of hours per day or per calendar week on this contract, they shall be paid for all hours in excess of the prevailing hours at a rate of at least one and one-half (1 1/2) times their hourly rate of pay. All work on Saturday, Sunday and the following holidays is to be paid at time and a half: (1) January 1, (2) the last Monday in May, (3) July 4, (4) the first Monday in September, (5) the fourth Thursday in November, (6) December 25, (7) the day before if January 1, July 4 or December 25 falls on a Saturday and (8) the day following if January 1, July 4 or December 25 falls on a Sunday.

All laborers, workers, mechanics and truck drivers shall be paid unconditionally not less often than once a week. Persons who own and operate their own trucks must receive the prevailing truck driver rate for the applicable type of truck (i.e. 2 axle, 3 or more axle, articulated, eculid or dumptor) he or she operates, plus an agreed upon amount for the use of his or her truck. Every owner-operator MUST be paid separately for their driving and for the use of their truck.

For those projects subject to the requirements of the Davis-Bacon Act, the Secretary of Labor will also have determined "Minimum Wage Rates" for work to be performed under the contract. These rates are, for all or most of the labor, worker, mechanic or truck driver classifications, identical to those established under Section 103.50 of the Wisconsin Statutes. In the event the rates are not identical, the higher of the two rates will govern.

II. PAYROLL REQUIREMENTS

All contractors and subcontractors must submit weekly Certified Payrolls and Compliance Statement verifying that all laborers, workers, mechanics and truck drivers working on the project have been paid the prevailing wage rates for all work performed under the contract required by Section 103.50 of the Wisconsin Statutes.

III. POSTINGS AT THE SITE OF THE WORK

In addition to the required postings furnished by the Department, the contractor shall post the following in at least one conspicuous place at the site of work:

a. "NOTICE TO EMPLOYEES," which provides information required to be posted by the provisions of Section 103.50 of the Wisconsin Statutes.

b. A copy of the State of Wisconsin Minimum Wages Rates. (Four pages.)

c. A copy of the contractor's Equal Employment Opportunity Policy.

d. On any project involving federal aid, in addition to the furnished postings, the contractor shall post a copy of the "Davis-Bacon Act, Minimum Wage Rates". (Three pages.)

IV. WAGE RATE REDISTRIBUTION

The amount specified as the hourly basic rate of pay and the amount(s) specified as the fringe benefit contribution(s), for all classes of laborers, workers, mechanics or truck drivers may be redistributed, when necessary, to conform to those specified in any applicable collective bargaining agreement, provided that both parties to such agreement

request and receive the approval for any such redistribution from both the Department of Transportation and the Department of Workforce Development prior to the implementation of such redistribution.

V. ADDITIONAL CLASSIFICATIONS

Any unlisted laborer or mechanic classification that is needed to perform work on this project, and is not included within the scope of any of the classifications listed in the application prevailing wage rate determination, may be added after award only if all of the following criteria have been met:

1. The affected employer(s) must make a written request to WisDOT Central Office to utilize the unlisted classification on this project.

2. The request must indicate the scope of the work to be performed by the unlisted classification and must indicate the proposed wage/fringe benefit package that the unlisted classification is to receive.

3. The work to be performed by the unlisted classification must not be performed by a classification that is included in the applicable prevailing wage rate determination.

4. The unlisted classification must be commonly employed in the area where the project is located.

5. The proposed wage/fringe benefit package must bear a reasonable relationship to those set forth in the applicable prevailing wage rate determination.

6. The request should be made prior to the actual performance of the work by the unlisted classification.

7. DWD must approve the use of the unlisted classification and the proposed wage/fringe benefit package. USDOL also must approve the use of the unlisted classification and the proposed wage/fringe benefit package on federal aid projects.

8. WisDOT and DWD may amend the proposed wage/fringe benefit package, as deemed necessary, and may set forth specific employment ratios and scope of work requirements in the approval document.

The approved wage/fringe benefit package shall be paid to all laborers, workers, mechanics or truck drivers performing work within the scope of that performed by the unlisted classification, from the first day on which such work is performed. In the event that work is performed by the unlisted classification prior to approval, the wage/fringe benefit package to be paid for such work must be in conformance with the wage/fringe

benefit package approved for such work. Under this arrangement a retroactive adjustment in wages and/or fringe benefits may be required to be made to the affected laborers, workers, mechanics or truck drivers by the affected employer(s).

ANNUAL PREVAILING WAGE RATE DETERMINATION
FOR ALL STATE HIGHWAY PROJECTS
MILWAUKEE COUNTY

Compiled by the State of Wisconsin - Department of Workforce Development
for the Department of Transportation
Pursuant to s. 103.50, Stats.
Issued on May 1, 2013

CLASSIFICATION: Contractors are required to call the Department of Workforce Development if there are any questions reqarding the proper trade or classification to be used for any worker on a public works project.

OVERTIME: Time and one-half must be paid for all hours worked over 10 hours per day and 40 hours per calendar week and for all hours worked on Saturday, Sunday and the following six (6) 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.

FUTURE INCREASE: If indicated for a specific trade or occupation, the full amount of such increase MUST be added to the "TOTAL" indicated for such trade or occupation on the date(s) such increase(s) becomes effective.

PREMIUM PAY: If indicated for a specific trade or occupation, the full amount of such pay MUST be added to the "HOURLY BASIC RATE OF PAY" indicated for such trade or occupation, whenever such pay is applicable.

SUBJOURNEY: Wage rates may be available for some of the classifications indicated below. Any employer that desires to use any subjourney classification on a project MUST request the applicable wage rate from the Department of Workforce Development PRIOR to the date such classification is used on such project. Form ERD-10880 is available for this purpose and can be obtained by writing to the Department of Workforce Development, Equal Rights Division, P.O. Box 8928, Madison, WI 53708.

TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
	$	$	$
Bricklayer, Blocklayer or Stonemason	35.58	19.20	54.78
Carpenter	32.93	19.81	52.74
Future Increase(s): Add $.75/hr on 6/3/2013. Add $1.25/hr on 6/2/2014.			
Premium Pay: 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.			
Cement Finisher	30.69	17.53	48.22
Future Increase(s): Add $1.87 on 6/1/13; Add $1.87 on 6/1/14; Add $1.87 on 6/1/15; Add $1.75 on 6/1/16.			
Premium Pay: 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.			
Electrician	31.54	21.14	52.68
Fence Erector	28.00	4.50	32.50
Ironworker	31.31	21.99	53.30
Line Constructor (Electrical)	31.29	15.34	46.63
Painter	29.22	16.69	45.91
Pavement Marking Operator	29.22	16.69	45.91
Piledriver	29.56	23.86	53.42
Roofer or Waterproofer	29.40	15.05	44.45
Teledata Technician or Installer	24.65	15.67	40.32
Tuckpointer, Caulker or Cleaner	34.35	11.13	45.48
Underwater Diver (Except on Great Lakes)	37.45	19.45	56.90
Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	29.64	17.06	46.70
Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	30.60	14.64	45.24
Premium Pay: DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year’s Day, Memorial Day,			

TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
	$	$	$
Independence Day, Labor Day, Thanksgiving Day & Christmas Day.			
Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	25.94	13.57	39.51
Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	24.08	12.96	37.04
Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.75	11.90	33.65
TRUCK DRIVERS			
Single Axle or Two Axle	33.22	18.90	52.12
Three or More Axle	23.31	17.13	40.44
Future Increase(s): Add $1.85/hr on 6/1/2013.			
Premium Pay: 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.			
Articulated, Euclid, Dumptor, Off Road Material Hauler	27.77	19.90	47.67
Future Increase(s): Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14.			
Premium Pay: 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 night work premium. See DOT's website for details about the applicability of this night work premium at: http://roadwaystandards.dot.wi.gov/hcci/labor- wages- eeo/ index. shtm.			
Pavement Marking Vehicle	23.84	14.90	38.74
Shadow or Pilot Vehicle	33.22	18.90	52.12
Truck Mechanic	22.50	16.19	38.69
LABORERS			
General Laborer	25.39	18.40	43.79
Future Increase(s): Add $1.70/hr on 6/1/2013; Add $1.60/hr on 6/1/2014.			
Premium Pay: Add $.15/hr for air tool operator, joint sawer and filler (pavement), vibrator or tamper operator (mechanical hand operated), chain saw operator and demolition burning torch laborer; Add $.35/hr for bituminous worker (raker and luteman), formsetter (curb, sidewalk and pavement) and strike off man; Add $.50/hr for line and grade specialist; Add $.65/hr for blaster and powderman; Add $2.01/hr for topman; Add $2.46/hr for bottomman; Add $3.23/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).			
Asbestos Abatement Worker	18.00	0.00	18.00
Landscaper	25.39	18.40	43.79
Future Increase(s): Add $1.70/hr on 6/1/13; Add $1.60/hr on 6/1/14.			
Premium Pay: 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).			
Flagperson or Traffic Control Person	21.88	18.40	40.28
Future Increase(s): Add $1.70/hr on 6/1/2013; Add $1.60/hr on 6/1/2014.			
Premium Pay: 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.			

TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
	$	$	$
Fiber Optic Laborer (Outside, Other Than Concrete Encased)	17.24	15.03	32.27
Railroad Track Laborer	14.50	3.53	18.03
HEAVY EQUIPMENT OPERATORS			
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 $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. Premium Pay: 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 night work premium. See DOT's website for details about the applicability of this night work premium at: http://roadwaystandards.dot.wi.gov/hcci/labor- wages- eeo/ index. shtm.	35.22	19.90	55.12
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 $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. Premium Pay: 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 night work premium. See DOT's website for details about the applicability of this night work premium at: http://roadwaystandards.dot.wi.gov/hcci/labor- wages- eeo/ index. shtm.	34.72	19.90	54.62
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);	34.22	19.90	54.12

TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
Tube Finisher; Tugger (NOT Performing Work on the Great Lakes); Winches & A- Frames. Future Increase(s): Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. Premium Pay: 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 night work premium. See DOT's website for details about the applicability of this night work premium at: http://roadwaystandards.dot.wi.gov/hcci/labor- wages- eeo/ index. shtm.			
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 $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. Premium Pay: 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 night work premium. See DOT's website for details about the applicability of this night work premium at: http://roadwaystandards.dot.wi.gov/hcci/labor- wages- eeo/ index. shtm.	33.96	19.90	53.86
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 $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. Premium Pay: 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 night work premium. See DOT's website for details about the applicability of this night work premium at: http://roadwaystandards.dot.wi.gov/hcci/labor- wages- eeo/ index. shtm.	33.67	19.90	53.57
Fiber Optic Cable Equipment.	20.00	7.88	27.88
Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	37.45	19.45	56.90
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.	37.45	19.45	56.90
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.	27.75	19.15	46.90
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.	27.75	19.15	46.90

State of Wisconsin Department of Workforce Development Equal Rights Division	**DEPARTMENTAL ORDER**

ISSUE DATE: 2/1/2013

PROJECT:

ZOO IC - LOCAL ROADS (GLENVIEW AVENUE/WATERTOWN PLANK ROAD/SWAN BOULEVARD)
WAUWATOSA CITY, MILWAUKEE COUNTY, WI
Determination No. 201300323 [Owner Project No. 1060-33-23]

PROJECT OWNER:	REQUESTER:
ALANE M STEPHENS, CONTRACT SPECIALIST WI DEPT OF TRANSPORTATION P O BOX 798 141 NW BARSTOW ST WAUKESHA, WI 53187	ALANE M STEPHENS, CONTRACT SPECIALIST WI DEPT OF TRANSPORTATION P O BOX 798 141 NW BARSTOW ST WAUKESHA, WI 53187
ADDITIONAL CONTACT:	**NOTE:** The Requester must provide a copy of this Project Determination and enclosures to the Project Owner and Additional Contact.

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), s. 66.0904(4)(e), 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
PO 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. 103.49, Wis. Stats.
Issued On: 2/1/2013

DETERMINATION NUMBER: 201300323

EXPIRATION DATE: Prime Contracts MUST Be Awarded or Negotiated On Or Before 12/31/2013. If NOT, You MUST Reapply.

PROJECT NAME: ZOO IC - LOCAL ROADS (GLENVIEW AVENUE/WATERTOWN PLANK ROAD/SWAN BOULEVARD)

PROJECT NO: 1060-33-23

PROJECT LOCATION: WAUWATOSA CITY, MILWAUKEE COUNTY, WI

CONTRACTING AGENCY: WI DEPT OF TRANSPORTATION

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 state agency projects of public works and are set forth below pursuant to the requirements of s. 103.49(3)(a), Stats.

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. 103.49 (2) PREVAILING WAGE RATES AND HOURS OF LABOR.
Any contract made for the erection, construction, remodeling, repairing, or demolition of any project of public works to which the state or any state agency is a party shall contain a stipulation that no person performing the work described in sub. (2m) may be permitted to work a greater number of hours per day or per week than the prevailing hours of labor, except that any such person may be permitted or required to work more than such prevailing hours of labor per day and per week if he or she is paid for all hours worked in excess of the prevailing hours of labor at a rate of at least 1.5 times his or her hourly basic rate of pay; nor may he or she be paid less than the prevailing wage rate determined under sub. (3) in the same or most similar trade or occupation in the area in which the project of public works is situated. A reference to the prevailing wage rates determined under sub. (3) and the prevailing hours of labor shall be published in the notice issued for the purpose of securing bids for the project. If any contract or subcontract for a project of public works that is subject to this section is entered into, the prevailing wage rates determined under sub. (3) and the prevailing hours of labor shall be physically incorporated into and made a part of the contract or subcontract, except that for a minor subcontract, as determined by the department, the department shall prescribe by rule the method of notifying the minor subcontractor of the prevailing wage rates and prevailing hours of labor applicable to the minor subcontract. The prevailing wage rates and prevailing hours of labor applicable to a contract or subcontract may not be changed during the time that the contract or subcontract is in force.

s. 103.49 (6M) LIABILITY AND PENALTIES.
(ag) 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 in subd. 2., 3., whichever is applicable.
2. If the department determines upon inspection under sub. (5) (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.
(am) Except as provided in pars. (b), (d) and (f), any contractor, subcontractor or contractor's or subcontractor's agent who violates this section may be fined not more than $200 or imprisoned for not more than 6 months or both. Each day that a violation continues is a separate offense.
(b) Whoever induces any person who seeks to be or is employed on any project of public works that is subject to this section to give up, waive, or return any part of the wages to which the person is entitled under the contract governing the project, or who reduces the hourly basic rate of pay normally paid to a person for work on a project that is not subject to this section during a week in which the person works both on a project of public works that is subject to this section and on a project that is not subject to this section, by threat not to employ, by threat of dismissal from employment, or by any other means is guilty of an offense under s. 946.15 (1).
(c) Any person employed on a project of public works that is subject to this section who knowingly permits a contractor, subcontractor, or contractor's or subcontractor's agent to pay him or her less than the prevailing wage rate set forth in the contract governing the project, who gives up, waives, or returns any part of the compensation to which he or she is entitled under the contract, or who gives up, waives, or returns any part of the compensation to which he or she is normally entitled for work on a project that is not subject to this section during a week in which the person works both on a project of public works that is subject to this section and on a project that is not subject to this section, is guilty of an offense under s. 946.15 (2).
(d) Whoever induces any person who seeks to be or is employed on any project of public works that is subject to this section to permit any part of the wages to which the person is entitled under the contract governing the project to be deducted from the person's pay is guilty of an offense under s. 946.15 (3), unless the deduction would be permitted under 29 CFR 3.5 or 3.6 from a person who is working on a project that is subject to 40 USC 3142.
(e) Any person employed on a project of public works that is subject to this section who knowingly permits any part of the wages to which he or she is entitled under the contract governing the project to be deducted from his or her pay is guilty of an offense under s. 946.15 (4), unless the deduction would be permitted under 29 CFR 3.5 or 3.6 from a person who is working on a project that is subject to 40 USC 3142.

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 $.75/hr on 6/3/2013. Add $1.25/hr on 6/2/2014.	32.93	19.81	52.74
102	Boilermaker	31.09	27.23	58.32
103	Bricklayer, Blocklayer or Stonemason Future Increase(s): Add $1.45/hr on 6/01/2013 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.	35.80	16.87	52.67
104	Cabinet Installer Future Increase(s): Add $.75/hr on 6/3/2013. Add $1.25/hr on 6/2/2014.	32.93	19.81	52.74
105	Carpenter Future Increase(s): Add $.75/hr on 6/3/2013. Add $1.25/hr on 6/2/2014. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	32.93	19.81	52.74
106	Carpet Layer or Soft Floor Coverer	33.43	19.21	52.64
107	Cement Finisher	32.57	17.03	49.60
108	Drywall Taper or Finisher	29.87	18.79	48.66
109	Electrician Future Increase(s): Add $1.60/hr on 6/1/2013. 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.	32.20	21.71	53.91
110	Elevator Constructor	41.71	23.88	65.59
111	Fence Erector	28.00	4.50	32.50
112	Fire Sprinkler Fitter	37.45	19.30	56.75

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
113	Glazier	34.19	18.25	52.44
114	Heat or Frost Insulator	33.93	23.26	57.19
115	Insulator (Batt or Blown)	27.47	19.16	46.63
116	Ironworker	31.31	21.99	53.30
117	Lather	33.43	19.31	52.74
118	Line Constructor (Electrical)	37.05	16.94	53.99
119	Marble Finisher	20.00	0.00	20.00
120	Marble Mason	35.58	16.37	51.95
121	Metal Building Erector	18.50	3.20	21.70
122	Millwright	28.28	24.19	52.47
123	Overhead Door Installer	27.30	3.28	30.58
124	Painter	29.27	18.18	47.45
125	Pavement Marking Operator	30.00	0.00	30.00
126	Piledriver Future Increase(s): Add $.75/hr on 6/3/2013. Premium Increase(s): Add $.65/hr for Piledriver Loftsman; Add $.75/hr for Sheet Piling Loftsman. DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	29.06	25.46	54.52
127	Pipeline Fuser or Welder (Gas or Utility)	31.18	19.29	50.47
129	Plasterer	32.06	17.68	49.74
130	Plumber Future Increase(s): Add $1.00/hr 6/1/2013; Add $1.00/hr 6/1/2014.	36.47	19.47	55.94
132	Refrigeration Mechanic	37.76	19.99	57.75
133	Roofer or Waterproofer	29.40	15.55	44.95
134	Sheet Metal Worker Future Increase(s): Add $1.41/hour 6/1/2013; Add $1.56/hour 6/1/2014.	36.17	18.00	54.17
135	Steamfitter	37.76	19.99	57.75
137	Teledata Technician or Installer Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year’s Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	24.75	16.08	40.83

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
138	Temperature Control Installer	37.31	19.49	56.80
139	Terrazzo Finisher Future Increase(s): Add $ .80 on 6/1/2013	26.57	16.50	43.07
140	Terrazzo Mechanic	29.51	17.63	47.14
141	Tile Finisher	22.27	6.52	28.79
142	Tile Setter	29.70	16.05	45.75
143	Tuckpointer, Caulker or Cleaner	34.35	11.13	45.48
144	Underwater Diver (Except on Great Lakes)	34.16	15.31	49.47
146	Well Driller or Pump Installer Future Increase(s): Add $.20/hr on 06/01/2013.	25.32	15.45	40.77
147	Siding Installer	37.20	17.01	54.21
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	28.24	15.10	43.34
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	29.64	17.79	47.43
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	25.94	13.57	39.51
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	24.08	12.96	37.04
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	24.00	11.57	35.57

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	33.32	17.60	50.92
203	Three or More Axle	18.00	9.50	27.50
204	Articulated, Euclid, Dumptor, Off Road Material Hauler Future Increase(s): Add $0.75/hour 6/3/2013; Add $1.00/hour 6/2/2014; Add $1.50/hour 6/1/2015; Add $1.60/hour 5/30/2016.	33.52	17.60	51.12
205	Pavement Marking Vehicle	20.85	11.02	31.87
207	Truck Mechanic	18.00	9.50	27.50

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 Premium Increase(s): Add $.11 for mortar mixer, fork lift operator, air and electric equipment and power buggy operators; Add $.22 for jackhammer operator, certified welder, gunite machineman.	28.82	16.11	44.93
302	Asbestos Abatement Worker	18.00	0.00	18.00
303	Landscaper	11.00	3.97	14.97
310	Gas or Utility Pipeline Laborer (Other Than Sewer and Water)	19.69	16.03	35.72
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	17.24	15.03	32.27
314	Railroad Track Laborer	14.50	3.53	18.03
315	Final Construction Clean-Up Worker	28.82	15.61	44.43

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 $0.75/hour 6/3/2013; Add $1.00/hour 6/2/2014; Add $1.50/hour 6/1/2015; Add $1.60/hour 5/30/2016.	33.82	17.60	51.42

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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 $0.75/hour 6/3/2013; Add $1.00/hour 6/2/2014; Add $1.50/hour 6/1/2015; Add $1.60/hour 5/30/2016.	33.52	17.60	51.12
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 $0.75/hour 6/3/2013; Add $1.00/hour 6/2/2014; Add $1.50/hour 6/1/2015; Add $1.60/hour 5/30/2016.	33.52	17.60	51.12
504	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	37.45	19.45	56.90
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 $2.19/hr on 01/01/2013; Add $2.00/hr on 01/01/2014. Premium Increase(s): Add $.50/hr for Friction Crane, Lattice Boom or Crane Certification (CCO).	38.80	20.17	58.97
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 $2.08/hr on 01/01/2013; Add $2.00/hr on 01/01/2014.	34.50	20.04	54.54
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. Future Increase(s): Add $1.88/hr on 01/01/2013; Add $2.00/hr on 01/01/2014.	28.70	19.86	48.56

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. Premium Increase(s): Crane Operators with CCO certification add $.50/hr. Cranes with boom length over 200 ft. not exceeding 300 ft. OR lifting capacity over 200 ton not exceeding 300 ton add $.50/hr. Over 300 ton OR 300 ft. add $.01/hr. per foot OR ton whichever is greater.	39.16	19.10	58.26
509	Backhoe (Track Type) Having a Mfgr's Rated Capacity of 130,000 Lbs. or Over; Boring Machine (Horizontal or Vertical); Caisson Rig; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With A Lifting Capacity Of 4,000 Lbs. & Under; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Pile Driver; Versi Lifts, Tri-Lifts & Gantrys (20,000 Lbs. & Over). Premium Increase(s): Crane Operators with CCO certification add $.50/hr.	38.66	19.10	57.76
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). Premium Increase(s): Crane Operators with CCO certification add $.50/hr.	38.16	19.10	57.26

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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).	37.47	19.10	56.57
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 $0.75/hour 6/3/2013; Add $1.00/hour 6/2/2014; Add $1.50/hour 6/1/2015; Add $1.60/hour 5/30/2016.	33.82	17.60	51.42
513	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Augers (Vertical & Horizontal); Boatmen (NOT Performing Work on the Great Lakes); Boiler (Temporary Heat); Crusher, Screening or Wash Plant; Elevator; Farm or Industrial Type Tractor; Fireman (Asphalt Plant NOT Performing Work on the Great Lakes); Forklift; Generator (&/or 150 KW or Over); Greaser; Heaters (Mechanical); Loading Machine (Conveyor); Oiler; Post Hole Digger or Driver; Prestress Machine; Pump (3 Inch or Over) or Well Points; Refrigeration Plant or Freeze Machine; Robotic Tool Carrier (With or Without Attachments); Rock, Stone Breaker; Skid Steer Loader (With or Without Attachments); Vibratory Hammer or Extractor, Power Pack.	30.44	19.10	49.54
514	Gas or Utility Pipeline, Except Sewer & Water (Primary Equipment). Future Increase(s): Add $2/hr on 1/1/2013.	34.89	20.59	55.48
515	Gas or Utility Pipeline, Except Sewer & Water (Secondary Equipment). Future Increase(s): Add $1.60/hr on 06/01/2013; Add $1.60/hr on 06/01/2014; Add $1.65/hr on 06/01/2015	32.26	17.95	50.21
516	Fiber Optic Cable Equipment	20.00	7.88	27.88

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

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 Future Increase(s): Add $1.45/hr on 6/01/2013 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.	35.80	16.87	52.67
105	Carpenter Future Increase(s): Add $.75/hr on 6/3/2013. Add $1.25/hr on 6/2/2014. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	32.93	19.81	52.74
107	Cement Finisher	30.68	16.75	47.43
109	Electrician Future Increase(s): Add $1.60/hr on 6/1/2013. 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.	32.20	21.71	53.91
111	Fence Erector	28.00	4.50	32.50
116	Ironworker	30.9	19.11	50.01
118	Line Constructor (Electrical)	37.05	16.94	53.99
125	Pavement Marking Operator	28.1	15.0	43.10
126	Piledriver	29.56	24.96	54.52
130	Plumber	36.97	.66	54.63
135	Steamfitter	38.26	19.49	57.75
137	Teledata Technician or Installer	24.65	15.67	40.32
143	Tuckpointer, Caulker or Cleaner	34.35	11.13	45.48
144	Underwater Diver (Except on Great Lakes)	37.45	19.45	56.90
146	Well Driller or Pump Installer	21.00	2.23	23.23

Not Applicable

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	28.24	15.10	43.34
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	29.64	17.79	47.43
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	25.94	13.57	39.51
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	24.08	12.96	37.04
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.75	11.90	33.65

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	25.87	13.00	38.87
203	Three or More Axle	18.00	0.00	18.00
204	Articulated, Euclid, Dumptor, Off Road Material Hauler	31.89	17.98	49.87
205	Pavement Marking Vehicle	20.85	11.02	31.87
207	Truck Mechanic	17.00	0.00	17.00

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 Premium Increase(s): Add $1.92 for bottomman; Add $2.03 for concrete manhole builder, bracer, jointman, or pipelayer; Add $4.83 for blaster. Add $2.00 for all tunnel work under 15 lbs. compressed air; Add $2.00 for 0-30 lbs. compressed air; Add $3.00 for over 30 lbs. compressed air.	28.94	16.11	45.06
303	Landscaper	26.92	12.51	39.43
304	Flagperson or Traffic Control Person	23.55	13.45	37.00
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	17.24	15.03	32.27
314	Railroad Track Laborer	14.50	3.53	18.03

Not Applicable

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. Future Increase(s) Add $1/hr on 6/1/2013 Premium Increase(s): Add $.50/hr for >300 Ton / Add $1/hr at 300 Ton / Add $1.50 at 400 Ton / Add $2/hr at 500 Ton & Over.	35.12	18.46	53.58
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 & 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). Premium Increase(s): Add $.25/hr for operating tower crane.	35.36	19.15	54.51
523	Air Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Boring Machine (Horizontal or Vertical); Bulldozer or Endloader (Over 40 hp); Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Concrete Pump (46 Meter & Under), Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Gradall (Cruz-Aire Type); Grader or Motor Patrol; Hydro-Blaster (10,000 PSI or Over); Manhoist; Material or Stack Hoist; Mechanic or Welder; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yd or More Capacity; Screed (Milling Machine); Sideboom; Straddle Carrier or Travel Lift; Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Tractor or Truck Mounted Hydraulic Crane (10 Tons or Under); Trencher (Wheel Type or Chain Type Having Over 8-Inch Bucket). Premium Increase(s): Add $.25/hr for operating tower crane.	34.41	19.15	53.56

Not Applicable

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 24 Inch Bucket or Under); Winches & A-Frames.	31.89	18.11	50.00
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 Excavator, Power Pack. Premium Increase(s): Add $.25/hr for operating tower crane.	31.96	19.15	51.11
526	Boiler (Temporary Heat); Forklift; Greaser; Oiler	30.44	19.10	49.54
527	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	37.45	19.45	56.90
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.	37.45	19.45	56.90
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.	27.75	19.15	46.90
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.	27.75	19.15	46.90

Not Applicable

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	33.00	15.00	48.00
105	Carpenter	30.16	15.31	45.47
107	Cement Finisher	28.73	17.03	45.76
109	Electrician Future Increase(s): Add $1.60/hr on 6/1/2013. Premium Increase(s): DOT PREMIUM: Pay [illegible] times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	32.20	21.71	53.91
111	Fence Erector	28.00	4.50	32.50
116	Ironworker	31.31	21.99	53.30
118	Line Constructor (Electrical)	37.05	16.94	53.99
124	Painter	29.27	18.18	47.45
125	Pavement Marking Operator	28.10	15.00	43.10
126	Piledriver	29.56	24.96	54.52
133	Roofer or Waterproofer	[illegible]	15.05	44.45
137	Teledata Technician or Installer	[illegible]	15.67	40.32
143	Tuckpointer, Caulker or Cleaner	[illegible]4.35	11.13	45.48
144	Underwater Diver (Except on Great Lakes)	37[illegible]	[illegible]45	56.90
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	29.64	14.55	44.19
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	29.64	17.[illegible]	47.43
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	25.94	13.57	39.51
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	24.08	12.96	37.04
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.75	11.90	33.65

Not Applicable

TRUCK DRIVERS

Fringe Benefits Must Be Paid On All Hours Worked

CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
201	Single Axle or Two Axle	25.87	13.00	38.87
203	Three or More Axle	17.00	0.00	17.00
204	Articulated, Euclid Dumptor, Off Road Material Hauler Future Increase(s): Add $1/hr on 6/2/2013.	32.39	18.46	50.85
205	Pavement Marking Vehicle	20.85	11.02	31.87
206	Shadow or Pilot Vehicle	25.87	13.00	38.87
207	Truck Mechanic	17.00	0.00	17.00

LABORERS

Fringe Benefits Must Be Paid On All Hours Worked

CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
301	General Laborer	22.31	18.64	40.95
303	Landscaper Future Increase(s): Add $1.70/hr on 6/1/13; Add $1.60/hr on 6/1/14 Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).	28.07	13.90	41.97
304	Flagperson or Traffic Control Person Future Increase(s): Add $1.70/hr on 6/1/2013; Add $1.60/hr on 6/1/2014. 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.	24.70	13.90	38.60
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	17.24	15.03	32.27
314	Railroad Track Laborer	14.50	3.53	18.03

Not Applicable

HEAVY EQUIPMENT OPERATORS
CONCRETE PAVEMENT OR BRIDGE WORK

Fringe Benefits Must Be Paid On All Hours Worked

CODE	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 Derrick; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Master Mechanic. Future Increase(s): Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr night work premium. See DOT's website for details about the applicability of this night work premium at: http://roadwaystandards.dot.wi.gov/hcci/labor-wages-eeo/index.shtm.	35.22	19.90	55.12
542	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of 130,000 Lbs. or Over; Caisson Rig; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With a Lifting Capacity of 4,000 Lbs. & Under; Crane, Tower Crane Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Dredge (NOT Performing Work on the Great Lakes); Licensed Boat Pilot (NOT Performing Work on the Great Lakes); Pile Driver. Future Increase(s): Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr night work premium. See DOT's website for details about the applicability of this night work premium at: http://roadwaystandards.dot.wi.gov/hcci/labor-wages-eeo/index.shtm.	34.72	19.90	54.62

Not Applicable

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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 (Derry 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 Pipe 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 $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr night work premium. See DOT's website for details about the applicability of this night work premium at: http://roadwaystandards.dot.wi.gov/hcci/labor-wages-eeo/index.shtm.	34.22	19.90	54.12
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 (WIth or Without Attachments); Self Propelled Chip Spreader; Shouldering Machine; Skid Steer Loader (With or Without Attachments); Telehandler; Tining or Curing Machine. Future Increase(s): Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr night work premium. See DOT's website for details about the applicability of this night work premium at: http://roadwaystandards.dot.wi.gov/hcci/labor-wages-eeo/index.shtm.	33.96	19.90	53.86

Not Applicable

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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; Rig 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.	33.02	17.60	50.62
546	Fiber Optic Cable Equipment.	20.00	7.88	27.88
547	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	37.45	19.45	56.90
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.	37.45	19.45	56.90
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.	27.75	19.15	46.90
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.	27.75	19.15	46.90

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

CODE	Fringe Benefits Must Be Paid On All Hours Worked 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.	39.1[illegible]	19.[illegible]0	58.26
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/hr on 6/2/2013.	32.92	18.4[illegible]	51.38

Not Applicable

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: Timber Tree Shear, Tub Grinder, Processor; Gradall (Cruz-Air 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.	32.67	18.44	51.11
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. Future Increase(s): Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14.	33.67	19.55	53.22
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 $2/hr on 6/1/13; Add $1.75/hr on 6/1/14.	33.67	19.55	53.22
556	Fiber Optic Cable Equipment.	20.00	7.88	27.88

Not Applicable

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

Department of Workforce Development
Equal Rights Division
P.O. Box 8928
Madison, WI 53708-8928
Telephone: (608) 266-6860
Fax: (608) 267-4592
TTY: (608) 264-8752

STATE OF WISCONSIN
DWD
Department of Workforce Development

Scott Walker, Governor
Reginald J. Newson, Secretary
Joe Handrick, Division Administrator

The documents following the Prevailing Wage Rate Determination consist of 18 pages of various forms/documents that will be used throughout the completion of the project. The chart below lists the form number, form/document name, the party who uses the document, and the document's number of pages. If you have any questions regarding these forms please call the Prevailing Wage Office at (608)266-6861.

ERD Form Number	Form Name	Party Who Uses the Form	Pages
16056	Post the White Sheet	Contracting agency	1
16770	Substance Abuse Prevention on Public Works and Publicly Funded Projects, §103.503, Wis. Stats.	All contractors working on public works and publicly funded private construction projects	1
10908	Consolidated List of Debarred Contractors	Any party contracting someone to complete work on a prevailing wage project	2
7777	Disclosure of Ownership	Contractors that meet the criteria set out in (3)(A)&(B) of the form	1
5724	Prime Contractor Affidavit of Compliance	Prime contractor files with contracting agency upon completion of the work before receiving final payment	2
10584	Agent or Subcontractor Affidavit of Compliance	Subcontractors file with their awarding contractor upon completion of their work on the project before receiving final payment	2
10880	Request to Employ Subjourneyperson	Contractors wishing to employ a subjourneyperson(s)	1
	Prevailing Wage - Public Entity Project Owners	Explanation of project owner responsibilities	2
	Prevailing Wage – Contractors	Explanation of contractor responsibilities	2
	Summary of Prevailing Wage Law Changes Effective July 1, 2011	Information for public entity or any other interested party	4

09/01/12

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.

Disclaimer

Employers performing work on public works and publicly funded private construction projects in Wisconsin are required to have a written substance abuse testing program in place. The provisions of this requirement are contained in Sec. 103.503, Wis. Stats. The Department of Workforce Development is neither responsible for enforcement of this law nor authorized to answer questions concerning its provisions. For legal advice on complying with Sec. 103.503, Wis. Stats., you may wish to consult with a private attorney.

103.503 Substance abuse prevention on public works and publicly funded projects. (1) DEFINITIONS. In this section:

(a) "Accident" means an incident caused, contributed to, or otherwise involving an employee that resulted or could have resulted in death, personal injury, or property damage and that occurred while the employee was performing the work described in s. 66.0903 (4), 66.0904 (3), or 103.49 (2m) on a project.

(b) "Alcohol" has the meaning given in s. 340.01 (1q).

(c) "Contracting agency" means a local governmental unit, as defined in s. 66.0903 (1) (d), a state agency, as defined in s. 103.49 (1) (f), or an owner or developer under s. 66.0904 that has contracted for the performance of work on a project.

(d) "Drug" means any controlled substance, as defined in s. 961.01 (4), or controlled substance analog, as defined in s. 961.01 (4m), for which testing is required by an employer under its substance abuse prevention program under this section.

(e) "Employee" means a laborer, worker, mechanic, or truck driver who performs the work described in s. 66.0903 (4), 66.0904 (3), or 103.49 (2m) on a project.

(f) "Employer" means a contractor, subcontractor, or agent of a contractor or subcontractor that performs work on a project.

(g) "Project" mean a project of public works that is subject to s. 66.0903 or 103.49 or a publicly funded private construction project that is subject to s. 66.0904.

(2) SUBSTANCE ABUSE PROHIBITED. No employee may use, possess, attempt to possess, distribute, deliver, or be under the influence of a drug, or use or be under the influence of alcohol, while performing the work described in s. 66.0903 (4), 66.0904 (3), or 103.49 (2m) on a project. An employee is considered to be under the influence of alcohol for purposes of this subsection if he or she has an alcohol concentration that is equal to or greater than the amount specified in s. 885.235 (1g) (d).

(3) SUBSTANCE ABUSE PREVENTION PROGRAMS REQUIRED. (a) Before an employer may commence work on a project, the employer shall have in place a written program for the prevention of substance abuse among its employees. At a minimum, the program shall include all of the following:

1. A prohibition against the actions or conditions specified in sub. (2).

2. A requirement that employees performing the work described in s. 66.0903 (4), 66.0904 (3), or 103.49 (2m) on a project submit to random, reasonable suspicion, and post-accident drug and alcohol testing and to drug and alcohol testing before commencing work on a project, except that testing of an employee before commencing work on a project is not required if the employee has been participating in a random testing program during the 90 days preceding the date on which the employee commenced work on the project.

3. A procedure for notifying an employee who violates sub. (2), who tests positive for the presence of a drug in his or her system, or who refuses to submit to drug or alcohol testing as required under the program that the employee may not perform work on a project until he or she meets the conditions specified in sub. (4) (b) 1. and 2.

(b) Each employer shall be responsible for the cost of developing, implementing, and enforcing its substance abuse prevention program, including the cost of drug and alcohol testing of its employees under the program. The contracting agency is not responsible for that cost, for the cost of any medical review of a test result, or for any rehabilitation provided to an employee.

(4) EMPLOYEE ACCESS TO PROJECT. (a) No employer may permit an employee who violates sub. (2), who tests positive for the presence of a drug in his or her system, or who refuses to submit to drug or alcohol testing as required under the employer's substance abuse prevention program under sub. (3) to perform work on a project until he or she meets the conditions specified in par. (b) 1. and 2. An employer shall immediately remove an employee from work on a project if any of the following occurs:

1. The employee violates sub. (2), tests positive for the presence of a drug in his or her system, or refuses to submit to drug or alcohol testing as required under the employer's substance abuse prevention program.

2. An officer or employee of the contracting agency has a reasonable suspicion that the employee is in violation of sub. (2) and requests the employer to immediately remove the employee from work on the project.

(b) An employee who is barred or removed from work on a project under par. (a) may commence or return to work on the project upon his or her employer providing to the contracting agency documentation showing all of the following:

1. That the employee has tested negative for the presence of drugs in his or her system and is not under the influence of alcohol as described in sub. (2).

2. That the employee has been approved to commence or return to work on the project in accordance with the employer's substance abuse prevention program.

(c) Testing for the presence of drugs or alcohol in an employee's system and the handling of test specimens shall be conducted in accordance with guidelines for laboratory testing procedures and chain-of-custody procedures established by the substance abuse and mental health services administration of the federal department of health and human services.

(5) LOCAL ORDINANCES; STRICT CONFORMITY REQUIRED. A local governmental unit, as defined in s. 66.0903 (1) (d), may enact an ordinance regulating the conduct regulated under this section only if the ordinance strictly conforms to this section.

History: 2005 a. 181; 2009 a. 28.

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

This list has been prepared in accordance with the provisions of s. 66.0903(12), s. 66.0904(10) and s. 103.49(7), Stats. and Chapter DWD 294 of the Wisconsin Administrative Code. All contractors on this list were found to have committed a "debarable offense" related to certain labor standard provisions determined or established for a state or local public works project or publicly funded private construction project. No state agency, local governmental unit or owner or developer may knowingly solicit bids from, negotiate with or award any contracts to or approve or allow any subcontracts with a debarred contractor, including all divisions, affiliates or other organizational elements of such contractor that are engaged in construction business activities, until the debarment is terminated. The name of each debarred contractor must remain on this list for a period of three (3) years from the termination date indicated below. The contractor is, however, only "debarred" from the "effective date" through the "termination date" indicated for that contractor. Questions regarding this list should be addressed to Julie Eckenwalder, Equal Rights Division, P. O. Box 8928, Madison, WI 53708 or call (608) 266-3148. Deaf, hearing or speech-impaired callers may contact the department by calling its TDD number (608) 264-8752.

Name of Contractor	Address	Effective Date	Termination Date	Cause Code	Date of Violation(s)	Limitations/Deviations
Abel, Mike	*See,* Abel Electric, Inc					
Abel Electric, Inc	3385 Belmar Rd Green Bay, WI 54313	9/1/12	8/31/2015	1	2011	None
Atkins, Scott	*See,* Freedom Insulation, Inc					
Boecker, Roger	*See,* R-Way Pumping, Inc					
Castlerock Commercial Construction, Inc	PO Box 11699 Milwaukee, WI 53211-0699	2/1/12	1/31/15	1, 2 and 4	2009 & 2010	None
Custom Heating & Air LLC	283 Tony Lane Green Bay, WI 54304	12/1/06	11/30/09	1, 2 and 4	2003 & 2004	None
Dem/Ex Group, Inc	805 S Adams St Manito, IL 61546	12/1/11	11/30/14	1 and 2	2010	None
Fisher, Ed &/or Fisher, Rhonda	*See,* Dem/Ex Group, Inc					
Freedom Insulation, Inc	117925 219th Ave Chippewa Falls, WI 54729	9/1/11	8/31/14	1	2008-2010	None

Name of Contractor	Address	Effective Date	Termination Date	Cause Code	Date of Violation(s)	Limitations/Deviations
JT Roofing, Inc	350 Tower Dr Saukville, WI 53080	6/1/11	5/31/15	1,2 and 4	2007 & 2008	None
Jinkins, Richard	*See,* Castlerock Commercial Construction, Inc.					
Joseph Stoller Company	N8426 Hwy 42 Algoma, WI 54201	2/1/07	1/31/10	1 and 2	2004 & 2005	None
Keiver, David	*See,* Custom Heating & Air LLC					
Ofstie, Darin	*See,* Precision Excavating and Grading, LLC					
Precision Excavating and Grading, LLC or Precision Excavating Enterprises, LLC	2104 Pierce Saint Croix Rd Baldwin, WI 54002	5/1/11	4/30/14	1, 2 and 4	2006-2008	None
R-Way Pumping, Inc	3023 Lake Maria Rd Freeport, MN 56331	3/1/12	2/28/15	1, 2 and 4	2008	None
Stoller Enterprises LLC	N8426 Hwy 42 Algoma, WI 54201-9552	2/1/2007	1/31/10	1 and 2	2005 to 2006	None
Stoller, Joseph	*See,* Joseph Stoller Company					
Stoller, Patrick J	*See,* Stoller Enterprises LLC					
Thull, Gerald T	*See,* JT Roofing, Inc.					

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

State of Wisconsin
Department of Workforce Development
Equal Rights Division

Disclosure of Ownership

The statutory authority for the use of this form is prescribed in Sections 66.0903(12)(d), 66.0904(10)(d) and 103.49(7)(d), Wisconsin Statutes.
The use of this form is mandatory. The penalty for failing to complete this form is prescribed in Section 103.005(12), Wisconsin Statutes.
Personal information you provide may be used for secondary purposes [Privacy Law, s. 15.04(1) (m), Wisconsin Statutes]

(1) On the date a contractor submits a bid to or completes negotiations with a state agency, local governmental unit, or developer, investor or owner on a project subject to Section 66.0903, 66.0904 or 103.49, Wisconsin Statutes, the contractor shall disclose to such state agency, local governmental unit, or developer, investor or owner, the name of any "other construction business", which the contractor, or a shareholder, officer or partner of the contractor, owns or has owned within the preceding three (3) years.

(2) The term "other construction business" means any business engaged in the erection, construction, remodeling, repairing, demolition, altering or painting and decorating of buildings, structures or facilities. It also means any business engaged in supplying mineral aggregate, or hauling excavated material or spoil as provided by Sections 66.0903(3), 66.0904(2), 103.49(2) and 103.50(2), Wisconsin Statutes.

(3) This form must ONLY be filed, with the state agency project owner, local governmental unit project owner, or developer, investor or owner of a publicly funded private construction project that will be awarding the contract, if **both (A) and (B) are met**.

(A) The contractor, or a shareholder, officer or partner of the contractor:
(1) Owns at least a 25% interest in the "other construction business", indicated below, on the date the contractor submits a bid or completes negotiations.
(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

Other Construction Business

Name of Business			
Street Address or P O Box	City	State	Zip Code
Name of Business			
Street Address or P O Box	City	State	Zip Code
Name of Business			
Street Address or P O Box	City	State	Zip Code
Name of Business			
Street Address or P O Box	City	State	Zip Code

I hereby state under penalty of perjury that the information, contained in this document, is true and accurate according to my knowledge and belief.

Print the Name of Authorized Officer			
Signature of Authorized Officer	Date Signed		
Name of Corporation, Partnership or Sole Proprietorship			
Street Address or P O Box	City	State	Zip Code

If you have any questions call (608) 266-6861

State of Wisconsin
Department of Workforce Development
Equal Rights Division

Prime Contractor Affidavit of Compliance With Prevailing Wage Rate Determination

Authorization for this form is provided under Sections 66.0903(9)(c), 66.0904(7)(c) and 103.49(4r)(c) Wisconsin Statutes.
The use of this form is mandatory. The penalty for failing to complete this form is prescribed in Section 103.005(12), Wisconsin Statutes.
Personal information you provide may be used for secondary purposes [Privacy Law, s. 15.04(1)(m), Wisconsin Statutes].

This form must **ONLY** be filed with the **Awarding Agency** indicated below.

State Of)	Project Name	
	DWD Determination Number	Project Number (if applicable)
)SS	Date Determination Issued	Date of Contract
County Of)	Awarding Agency	
	Date Work Completed	

After being duly sworn, the person whose name and signature appears below hereby states under penalty of perjury that

- **I am** the duly authorized officer of the corporation, partnership, sole proprietorship or business indicated below and have recently completed all of the work required under the terms and conditions of a contract with the above-named awarding agency and make this affidavit in accordance with the requirements set forth in Section 66.0903(9)(c), 66.0904(7)(c) or 103.49(4r)(c), Wisconsin Statutes and Chapter DWD 290 of the Wisconsin Administrative Code in order to obtain FINAL PAYMENT from such awarding agency.
- **I have** fully complied with all the wage and hour requirements applicable to this project, including all of the requirements set forth in the prevailing wage rate determination indicated above which was issued for such project by the Department of Workforce Development on the date indicated above.
- **I have** received the required affidavit of compliance from each of my agents and subcontractors that performed work on this project and have listed each of their names and addresses on page 2 of this affidavit.
- **I have** full and accurate records that clearly indicate the name and trade or occupation of every worker(s) that I employed on this project, including an accurate record of the hours worked and actual wages paid to such worker(s).
- **I will** retain the records and affidavit(s) described above and make them available for inspection for a period of at least three (3) years from the completion date indicated above at the address indicated below and shall not remove such records or affidavit(s) without prior notification to the awarding agency indicated above.

Name of Corporation, Partnership, Sole Proprietorship, Business, State Agency or Local Governmental Unit				
Street Address	City	State	Zip Code	Telephone Number
Print Name of Authorized Officer			Date Signed	
Signature of Authorized Officer				

List of Agents and Subcontractors

Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		

State of Wisconsin
Department of Workforce Development
Equal Rights Division

Agent or Subcontractor Affidavit of Compliance With Prevailing Wage Rate Determination

Authorization for this form is provided under Sections 66.0903(9)(b), 66.0904(7)(b) and 103.49(4r)(9b), Wisconsin Statutes. The use of this form is mandatory. The penalty for failing to complete this form is prescribed in Section 103.005(12), Wisconsin Statutes.
Personal information you provide may be used for secondary purposes [Privacy Law, Section 15.04(1)(m), Wisconsin Statutes].

This form must **ONLY** be filed with the **Awarding Contractor** indicated below.

State Of _____))SS County Of _____)	Project Name	
	DWD Determination Number	Project Number (if applicable)
	Date Determination Issued	Date of Subcontract
	Awarding Contractor	
	Date Work Completed	

After being duly sworn, the person whose name and signature appears below hereby states under penalty of perjury that

- **I am** the duly authorized officer of the corporation, partnership, sole proprietorship or business indicated below. We have recently completed all of the work required under the terms and conditions of a subcontract with the above-named awarding contractor. We make this affidavit in accordance with the requirements set forth in Section 66.0903(9)(b), 66.0904(7)(b) or 103.49(4r)(b), Wisconsin Statutes and Chapter DWD 290 of the Wisconsin Administrative Code in order to obtain FINAL PAYMENT from such awarding contractor.
- **I have** fully complied with the entire wage and hour requirements applicable to this project, including all of the requirements set forth in the prevailing wage rate determination indicated above which was issued for such project by the Department of Workforce Development on the date indicated above.
- **I have** received the required affidavit of compliance from each of my agents and subcontractors that performed work on this project and have listed each of their names and addresses on page 2 of this affidavit.
- **I have** full and accurate records that clearly indicate the name and trade or occupation of every worker(s) that I employed on this project, including an accurate record of the hours worked and actual wages paid to such worker(s).
- **I will** retain the records and affidavit(s) described above and make them available for inspection for a period of at least three (3) years from the completion date indicated above at the address indicated below and shall not remove such records or affidavit(s) without prior notification to the awarding contractor.

Name of Corporation, Partnership, Sole Proprietorship, Business, State Agency or Local Governmental Unit				
Street Address or PO Box	City	State	Zip Code	Telephone Number ( )
Print Name of Authorized Officer			Date Signed	
Authorized Officer Signature				

List of Agents and Subcontractors

Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ( )			Telephone Number ( )		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ( )			Telephone Number ( )		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ( )			Telephone Number ( )		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ( )			Telephone Number ( )		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ( )			Telephone Number ( )		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ( )			Telephone Number ( )		

If you have any questions call (608) 266-6861

State of Wisconsin
Department of Workforce Development
Equal Rights Division
Labor Standards Bureau

Request to Employ Subjourneyperson

The use of this form is mandatory. The penalty for failing to complete this form is prescribed in Section 103.005(12), Wisconsin Statutes.
Personal information you provide may be used for secondary purposes (Privacy Law, s. 15.04(1)(m), Wisconsin Statutes].
The employer indicated below requests that the Department of Workforce Development (DWD) determine the prevailing wage rate(s) and related qualifications to enable such employer to use a subjourneyperson(s) on the following prevailing wage project, in accordance with the provisions of Section DWD 290.025, Wisconsin Administrative Code.

1. Name of Project Appearing on the Project Determination			
County	City, Village or Town		
DWD Project Determination Number	Project Number (if applicable)		
2. Job Classification(s) for which you request a subjourney rate (i.e., carpenter, electrician, plumber, etc.)			
a.	b.		
c.	d.		
3. Employer Name (Print)	Requester Name (Print)		
Address	City	State	Zip Code
Telephone Number ( )	Requester Title		
Email address (if you prefer to receive your response via email)	Fax Number (if you prefer to receive your response via fax) ( )		

READ CAREFULLY: I understand that this request is ONLY applicable to the project and job classification(s) listed above and that subjourney employees primarily work under the direction of and assist a skilled trade employee by frequently using the tools of a skilled trade and will NOT regularly perform the duties of a general laborer, heavy equipment operator or truck driver. If the subjourney employee regularly performs the work of a different trade or occupation, he/she will be compensated for such work at the applicable journeyperson prevailing wage rate. I agree to compensate subjourney employees in strict accordance with the directions received from the DWD.

Requester Signature	Date Signed

MAIL the completed request to:
EQUAL RIGHTS DIVISION, LABOR STANDARDS BUREAU
PO BOX 8928, MADISON WI 53708
OR
FAX the completed request to: (608) 267-0310 / **DO NOT e-mail your request.**
Call (608) 266-6861 for assistance in completing this form.

Department of Workforce Development
Equal Rights Division
P.O. Box 8928
Madison, WI 53708-8928
Telephone: (608) 266-6860
Fax: (608) 267-4592
TTY: (608) 264-8752

STATE OF WISCONSIN
DWD
Department of Workforce Development

Scott Walker, Governor
Reginald J. Newson, Secretary
John P. Conway, Division Administrator

PREVAILING WAGE – Public Entity Project Owners

Any public works project that has a total estimated project cost that equals or exceeds single-trade or multiple-trade project thresholds requires a prevailing wage rate determination issued by the Department of Workforce Development (DWD). Public works include erecting, constructing, remodeling, repairing, demolishing, alterations, painting and decorating projects for a local governmental unit or state agency. State law excludes minor service or maintenance work, warranty work, or work under a supply-and-installation contract. There is a statutory definition for each of these exclusions. The prevailing wage law that applies to local governmental units is §66.0903, Wis. Stats. The prevailing wage law that applies to state agencies is §103.49, Wis. Stats. The applicable administrative rules for all public entities are DWD 290 and DWD 294, Wis. Adm. Code.

Thresholds

A "single-trade project of public works" means a project in which a single trade accounts for 85% or more of the total labor cost of the project. The single trade threshold is $48,000.

A "multiple-trade project of public works" means a project in which no single trade accounts for 85% or more of the total labor cost of the project.

(a) The multiple-trade threshold is $100,000, unless a municipality falls under the description in (b).

(b) The multiple-trade threshold of $234,000 applies to public works projects erected, constructed, repaired, remodeled, or demolished by a private contractor for •a city or village with a population less than 2500 or •a town.

Effective July 1, 2011, a local governmental unit or state agency that has a public works project that equals or exceeds the prevailing wage thresholds must do all of the following:

- Request a prevailing wage rate determination for the project from DWD at least 30 days before soliciting bids or negotiating contracts. An Application for Prevailing Wage Rate Determination is available on the DWD website: http://dwd.wisconsin.gov/er/prevailing_wage_rate/default.htm
  To avoid waiting for a project determination use the on-line application system that permits the user to generate a determination immediately and save all documents in PDF form to the user's computer. Use this project determination on line application at the following address:

http://dwd.wisconsin.gov/er/prevailing_wage_rate/pw_online_determinations.htm

- Tell potential contractors the project is subject to state prevailing wage law when soliciting bids.

- Include the prevailing wage rate determination in the construction contract, or if there is no written contract, provide a copy of the project determination to each prime contractor.

- Award contracts to contractors who do *not* appear on the "Consolidated List of Debarred Contractors."

- Post the prevailing wage rate determination on the project site. (This document is often referred to as "the white sheet.")

- Notify project contractors that if DWD finds that a contractor violated the prevailing wage law, DWD will assess liquidated damages of 100% of the wages owed to employees.

- Obtain an Affidavit of Compliance from each prime contractor before making final payment for the project.

If the total estimated cost of the project exceeds the prevailing wage thresholds, a local governmental unit or state agency also must obtain a prevailing wage rate determination under the following circumstances:

- when a completed facility is leased, purchased, lease-purchased or otherwise acquired by or dedicated to a public entity in lieu of the public entity contracting for the project,

- when one public entity does work for another public entity,

- when a *private* entity will construct a road, street, bridge, sanitary sewer or water main project and dedicate it to a local governmental unit or the state for its ownership or maintenance (except for some residential subdivisions).

For more information, visit the prevailing wage website: http://dwd.wisconsin.gov/er/prevailing_wage_rate/default.htm. For further assistance, call the Equal Rights Division at 608-266-6861 and ask for prevailing wage.

Department of Workforce Development
Equal Rights Division
P.O. Box 8928
Madison, WI 53708-8928
Telephone: (608) 266-6860
Fax: (608) 267-4592
TTY: (608) 264-8752

STATE OF WISCONSIN
DWD
Department of Workforce Development

Scott Walker, Governor
Reginald J. Newson, Secretary
John P. Conway, Division Administrator

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 each of these exclusions. The prevailing wage law that applies to local governmental units and their contractors is §66.0903, Wis. Stats. The prevailing wage law that applies to state agencies and their contractors is §103.49, 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.

Effective July 1, 2011, 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."
- 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.

SUMMARY OF PREVAILING WAGE LAW CHANGES EFFECTIVE JULY 1, 2011

(This document updated 07/27/11)

For further updates on this topic, refer to the prevailing wage website at:
http://dwd.wisconsin.gov/er/prevailing_wage_rate/default.htm

The recently approved State budget bill (2011 Wisconsin Act 40) includes major changes to prevailing wage laws (§§66.0903, 66.0904, 103.49 & 103.50, Wis. Stats.) effective JULY 1, 2011. Significant changes are described below.

Topic	Who's affected?	Brief description of requirement under §66.0903 or §103.49
Thresholds	All public entities & Contractors	The $25,000 threshold for public works projects has been changed to single-trade and multiple-trade project thresholds as noted below. The new thresholds apply to prevailing wage projects whose prime contract is awarded after June 30, 2011.
Non-applicability: Threshold for Single-Trade Projects	All public entities & Contractors	Any single-trade project of public works with an estimated cost of completion of less than $48,000 does not require a prevailing wage rate determination. "Single-trade project of public works" means a project of public works in which a single trade accounts for 85 percent or more of the total labor cost of the project.
Non-applicability: Threshold for Multiple-Trade Projects	All public entities except cities, towns & villages as noted below & Contractors	Any multiple-trade project of public works with an estimated cost of completion of less than $100,000 does not require a prevailing wage rate determination. "Multiple-trade project of public works" means a project of public works in which no single trade accounts for 85 percent or more of the total labor cost of the project.
Non-applicability: Threshold for Multiple-Trade Projects	Cities or villages with a population less than 2500 & Towns & Contractors	A multiple trade project of public works erected, constructed, repaired, remodeled, or demolished by a private contractor for a city or village with a population less than 2500, or a town with an estimated cost of completion of less than $234,000 does not require a prevailing wage rate determination. "Multiple-trade project of public works" means a project of public works in which no single trade accounts for 85 percent or more of the total labor cost of the project.
Non-applicability: Minor service & maintenance work	Towns & Contractors	The following TOWN projects only do not require a prevailing wage rate determination: • A project not funded under §86.31, Stats. (TRIP projects) that is limited to minor crack filling, chip or slurry sealing or other minor pavement patching, not including overlays. • The depositing of gravel on an existing gravel road applied solely to maintain the road; • Road shoulder maintenance; • Cleaning drainage or sewer ditches or structures; • Any other limited, minor work on public facilities or equipment that is routinely performed to prevent breakdown or deterioration.
Non-applicability: Work which a contractor or individual donates to a public entity	All public entities	Prevailing wage laws §§66.0903 & 103.49, Stats., do not apply to work performed on a project of public works for which the local governmental unit or the state or the state agency contracting for the project is not required to compensate any contractor, subcontractor, contractor's or subcontractor's agent, or individual for performing the work.

Topic	Who's affected?	Brief description of requirement under §66.0903 or §103.49
Non-applicability: Residential	All public entities	A prevailing wage rate determination is not required for the erection, construction, repair, remodeling, or demolition of a residential property containing 2 dwelling units or less.
Non-applicability: Residential subdivision infrastructure	All public entities	A prevailing wage rate determination is not required for a road, street, bridge, sanitary sewer, or water main project that is a part of a development in which at least 90 percent of the lots contain or will contain 2 dwelling units or less, as determined by the local governmental unit at the time of approval of the development, and that, on completion, is acquired by, or dedicated to, a local governmental unit (including under §236.13(2), Stats.), or the state, for ownership or maintenance by the local governmental unit or the state.
Non-applicability: Certain nursing homes	All public entities	Prevailing wage law §66.0903, Stats., does not apply to a project of public works involving the erection, construction, repair, remodeling, or demolition of a nursing home in a county having a population of less than 50,000 when the project commences no later than July 1, 2012.
Electronic certified payroll record	Contractors	The requirement that every contractor on a prevailing wage project submit to DWD monthly a certified record of employees who worked on the project and that DWD post these certified records on its Internet website is discontinued effective July 1, 2011. However, contractors who worked on prevailing wage projects during the period January 1, 2010 through June 30, 2011, must comply with the repealed law for work completed on projects during that period of time.
Payroll record inspection request by any person	Contractors & Complainants	Any person may request DWD to inspect the payroll records of any contractor working on a prevailing wage project. On receipt of such a request, the contractor must submit to DWD a certified record of its payroll records, other than personally identifiable information relating to an employee of the contractor, for no longer than a 4-week period. DWD may request records from a contractor under this provision no more than once per calendar quarter for each project of public works on which the contractor is performing work. The department may not charge a requester a fee for obtaining that information. DWD must make these certified records available for public inspection.
Complaints	Complainants	There are no longer investigation fees.
Statewide uniformity	Local govern-mental units	A local governmental unit may not enact & administer a prevailing wage ordinance/provision for public works or publicly funded private construction projects. Any extant laws to that effect are void.

Topic	Who's affected?	Brief description of requirement under §66.0903, §103.49 or §103.50
Covered employees	Truck drivers & Other workers & Contractors	A laborer, worker, mechanic, or truck driver who is employed to process, manufacture, pick up, or deliver materials or products from a commercial establishment that has a fixed place of business from which the establishment supplies processed or manufactured materials or products or from a facility that is not dedicated exclusively, or nearly so, to a project of public works is NOT entitled to receive the prevailing wage rate UNLESS any of the following applies: 1) the laborer, worker, mechanic, or truck driver is employed to go to the source of mineral aggregate such as sand, gravel, or stone and deliver that mineral aggregate to the site of a project of public works by depositing the material directly in final place, from the transporting vehicle or through spreaders from the transporting vehicle. 2) the laborer, worker, mechanic, or truck driver is employed to go to the site of a project of public works, pick up excavated material or spoil from the site of the project, and transport that excavated material or spoil away from the site of the project.
Annual Prevailing Wage Survey	All public entities	When establishing yearly prevailing wage rates, DWD may not use data from any construction work that is performed by a local governmental unit or a state agency.
Prevailing Wage Rates	DOT & Contractors & Employees	For state highway prevailing wage rates, DWD is required to include wage rates for work performed on Sundays, holidays and shift differentials based on the time of day or night when work is performed.

The 2009-2011 State budget bill (2009 Wisconsin Act 28) created a new prevailing wage law (§66.0904, Wis. Stats.) for PUBLICLY FUNDED PRIVATE CONSTRUCTION PROJECTS effective January 1, 2010. The current 2011-2013 State budget bill (2011 Wisconsin Act 32) REPEALS this law. So the publicly funded private construction projects law only applies to projects that awarded the prime contract during the period January 1, 2010 through June 30, 2011.

SINGLE & MULTIPLE TRADE PROJECT THRESHOLDS FOR §§66.0903 & 103.49, Wis. Stats. Effective July 1, 2011

The $25,000 threshold for public works projects has been changed to single-trade and multiple-trade project thresholds as described below. Projects of public works with total estimated costs of completion that equal or exceed these thresholds require a prevailing wage rate determination.

SINGLE-TRADE THRESHOLD

A "single-trade project of public works" means a project in which a single trade accounts for 85 percent or more of the total labor cost of the project.

The single trade threshold is $48,000.

MULTIPLE-TRADE THRESHOLDS

A "multiple-trade project of public works" means a project in which no single trade accounts for 85 percent or more of the total labor cost of the project.

(a) The multiple-trade threshold is $100,000, unless a municipality falls under the description in (b).

(b) The multiple-trade threshold of $234,000 applies to public works projects erected, constructed, repaired, remodeled, or demolished by a private contractor for:

- a city or village with a population less than 2500, or
- a town

APPLYING THE NEW THRESHOLDS

The department will apply the new single-trade & multiple-trade prevailing wage thresholds to projects of public works for which the prime contract is awarded on or after July 1, 2011.

CONTRACT: 20130611007 PROJECT(S): 1060-33-73 FEDERAL ID(S): N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
	SECTION 0001 ROADWAY ITEMS					
0010	108.4400 CPM PROGRESS SCHEDULE	1.000 EACH		.		.
0020	201.0105 CLEARING **P**	29.000 STA		.		.
0030	201.0120 CLEARING	363.000 ID		.		.
0040	201.0205 GRUBBING **P**	29.000 STA		.		.
0050	201.0220 GRUBBING	363.000 ID		.		.
0060	203.0200 REMOVING OLD STRUCTURE (STATION) 0001. 186+44	LUMP	LUMP			.
0070	203.0210.S ABATEMENT OF ASBESTOS CONTAINING MATERIAL (STRUCTURE) 0001. B-40-134	LUMP	LUMP			.
0080	204.0100 REMOVING PAVEMENT **P**	4,778.000 SY		.		.
0090	204.0109.S REMOVING CONCRETE SURFACE PARTIAL DEPTH **P**	39,675.000 SF		.		.
0100	204.0110 REMOVING ASPHALTIC SURFACE **P**	5,241.000 SY		.		.

CONTRACT: 20130611007 PROJECT(S): 1060-33-73 FEDERAL ID(S): N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0110	204.0120 REMOVING ASPHALTIC SURFACE MILLING **P**	8,446.000 SY		.		.
0120	204.0150 REMOVING CURB & GUTTER **P**	1,435.000 LF		.		.
0130	204.0157 REMOVING CONCRETE BARRIER **P**	546.000 LF		.		.
0140	204.0165 REMOVING GUARDRAIL **P**	118.000 LF		.		.
0150	204.0170 REMOVING FENCE	2,904.000 LF		.		.
0160	204.0195 REMOVING CONCRETE BASES	14.000 EACH		.		.
0170	204.0210 REMOVING MANHOLES	4.000 EACH		.		.
0180	204.0220 REMOVING INLETS	13.000 EACH		.		.
0190	204.0245 REMOVING STORM SEWER (SIZE) 0001. 12-INCH **P**	836.000 LF		.		.
0200	204.0245 REMOVING STORM SEWER (SIZE) 0002. 15-INCH **P**	355.000 LF		.		.
0210	204.0245 REMOVING STORM SEWER (SIZE) 0003. 18-INCH **P**	374.000 LF		.		.

CONTRACT: 20130611007 PROJECT(S): 1060-33-73 FEDERAL ID(S): N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0220	204.0245 REMOVING STORM SEWER (SIZE) 0004. 24-INCH **P**	68.000 LF		.		.
0230	204.0280 SEALING PIPES	5.000 EACH		.		.
0240	205.0100 EXCAVATION COMMON	67,985.000 CY		.		.
0250	206.1000 EXCAVATION FOR STRUCTURES BRIDGES (STRUCTURE) 0002. B-40-775	LUMP	LUMP			.
0260	206.6000.S TEMPORARY SHORING	9,872.000 SF		.		.
0270	209.0200.S BACKFILL CONTROLLED LOW STRENGTH	12.000 CY		.		.
0280	210.0100 BACKFILL STRUCTURE **P**	580.000 CY		.		.
0290	213.0100 FINISHING ROADWAY (PROJECT) 0001. 1060-33-73	1.000 EACH		.		.
0300	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH	16,018.000 TON		.		.
0310	312.0110 SELECT CRUSHED MATERIAL	17,828.000 TON		.		.
0320	415.0080 CONCRETE PAVEMENT 8-INCH **P**	24,738.000 SY		.		.

CONTRACT: 20130611007 PROJECT(S): 1060-33-73 FEDERAL ID(S): N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0330	415.0410 CONCRETE PAVEMENT APPROACH SLAB	204.000 SY	.		.	
0340	416.0190 CONCRETE DRIVEWAY 9-INCH **P**	114.000 SY	.		.	
0350	416.0610 DRILLED TIE BARS	60.000 EACH	.		.	
0360	440.4410.S INCENTIVE IRI RIDE	6,473.000 DOL	1.00000		6473.00	
0370	455.0220 ASPHALTIC MATERIAL PG64-28	13.000 GAL	.		.	
0380	455.0605 TACK COAT	13.000 GAL	.		.	
0390	460.1110 HMA PAVEMENT TYPE E-10	222.000 TON	.		.	
0400	460.1130 HMA PAVEMENT TYPE E-30	1,393.000 TON	.		.	
0410	460.2000 INCENTIVE DENSITY HMA PAVEMENT	1,426.000 DOL	1.00000		1426.00	
0420	465.0105 ASPHALTIC SURFACE	612.000 TON	.		.	
0430	465.0125 ASPHALTIC SURFACE TEMPORARY	50.000 TON	.		.	

CONTRACT: 20130611007 PROJECT(S): 1060-33-73 FEDERAL ID(S): N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0440	465.0310 ASPHALTIC CURB	70.000 LF		.		.
0450	502.0100 CONCRETE MASONRY BRIDGES **P**	473.000 CY		.		.
0460	502.3200 PROTECTIVE SURFACE TREATMENT **P**	2,550.000 SY		.		.
0470	503.0155 PRESTRESSED GIRDER TYPE I 54W-INCH	2,670.000 LF		.		.
0480	504.0500 CONCRETE MASONRY RETAINING WALLS **P**	645.000 CY		.		.
0490	505.0405 BAR STEEL REINFORCEMENT HS BRIDGES	111,250.000 LB		.		.
0500	505.0605 BAR STEEL REINFORCEMENT HS COATED BRIDGES	259,740.000 LB		.		.
0510	505.0615 BAR STEEL REINFORCEMENT HS COATED RETAINING WALLS	104,815.000 LB		.		.
0520	506.2605 BEARING PADS ELASTOMERIC NON-LAMINATED **P**	44.000 EACH		.		.
0530	506.4000 STEEL DIAPHRAGMS (STRUCTURE) 0001. B-40-775 **P**	40.000 EACH		.		.
0540	513.2000 RAILING PIPE (STRUCTURE) 0001. R-40-484	LUMP	LUMP			.

CONTRACT: 20130611007 PROJECT(S): 1060-33-73 FEDERAL ID(S): N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0550	516.0500 RUBBERIZED MEMBRANE WATERPROOFING **P**	99.000 SY		.		.
0560	517.1050.S ARCHITECTURAL SURFACE TREATMENT (STRUCTURE) 0001. R-40-484	1,538.000 SF		.		.
0570	517.1050.S ARCHITECTURAL SURFACE TREATMENT (STRUCTURE) 0002. R-40-485	20,335.000 SF		.		.
0580	520.8000 CONCRETE COLLARS FOR PIPE	9.000 EACH		.		.
0590	522.1012 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 12-INCH	1.000 EACH		.		.
0600	522.1018 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 18-INCH	2.000 EACH		.		.
0610	522.1024 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 24-INCH	1.000 EACH		.		.
0620	550.0500 PILE POINTS	33.000 EACH		.		.
0630	550.1120 PILING STEEL HP 12-INCH X 53 LB	2,475.000 LF		.		.
0640	601.0105 CONCRETE CURB TYPE A **P**	163.000 LF		.		.

CONTRACT: 20130611007 PROJECT(S): 1060-33-73 FEDERAL ID(S): N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0650	601.0331 CONCRETE CURB & GUTTER 31-INCH **P**	13,981.000 LF		.		.
0660	601.0580 CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE R **P**	264.000 LF		.		.
0670	601.0600 CONCRETE CURB PEDESTRIAN **P**	373.000 LF		.		.
0680	602.0410 CONCRETE SIDEWALK 5-INCH **P**	46,770.000 SF		.		.
0690	602.0515 CURB RAMP DETECTABLE WARNING FIELD NATURAL PATINA	408.000 SF		.		.
0700	603.8000 CONCRETE BARRIER TEMPORARY PRECAST DELIVERED	1,650.000 LF		.		.
0710	603.8125 CONCRETE BARRIER TEMPORARY PRECAST INSTALLED	2,325.000 LF		.		.
0720	604.0400 SLOPE PAVING CONCRETE **P**	52.000 SY		.		.
0730	606.0200 RIPRAP MEDIUM	8.000 CY		.		.
0740	608.0312 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 12-INCH	177.000 LF		.		.
0750	608.0315 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 15-INCH	1,026.000 LF		.		.

CONTRACT: 20130611007 PROJECT(S): 1060-33-73 FEDERAL ID(S): N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0760	608.0318 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 18-INCH	686.000 LF		.		.
0770	608.0324 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 24-INCH	2,866.000 LF		.		.
0780	608.0330 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 30-INCH	210.000 LF		.		.
0790	608.0336 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 36-INCH	652.000 LF		.		.
0800	608.0342 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 42-INCH	455.000 LF		.		.
0810	608.0348 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 48-INCH	59.000 LF		.		.
0820	608.0430 STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 30-INCH	170.000 LF		.		.
0830	608.0436 STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 36-INCH	212.000 LF		.		.
0840	608.0460 STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 60-INCH	132.000 LF		.		.
0850	608.0524 STORM SEWER PIPE REINFORCED CONCRETE CLASS V 24-INCH	24.000 LF		.		.

CONTRACT: 20130611007 PROJECT(S): 1060-33-73 FEDERAL ID(S): N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0860	610.0124 STORM SEWER PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-III 24X38-INCH	135.000 LF		.		.
0870	611.0535 MANHOLE COVERS TYPE J-SPECIAL	9.000 EACH		.		.
0880	611.0624 INLET COVERS TYPE H	69.000 EACH		.		.
0890	611.0642 INLET COVERS TYPE MS	9.000 EACH		.		.
0900	611.0652 INLET COVERS TYPE T	2.000 EACH		.		.
0910	611.0663 INLET COVERS TYPE X	3.000 EACH		.		.
0920	611.2004 MANHOLES 4-FT DIAMETER	4.000 EACH		.		.
0930	611.2005 MANHOLES 5-FT DIAMETER	11.000 EACH		.		.
0940	611.2006 MANHOLES 6-FT DIAMETER	8.000 EACH		.		.
0950	611.2007 MANHOLES 7-FT DIAMETER	6.000 EACH		.		.

CONTRACT: 20130611007 PROJECT(S): 1060-33-73 FEDERAL ID(S): N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0960	611.2008 MANHOLES 8-FT DIAMETER	3.000 EACH		.		.
0970	611.3004 INLETS 4-FT DIAMETER	55.000 EACH		.		.
0980	611.3901 INLETS MEDIAN 1 GRATE	1.000 EACH		.		.
0990	611.3902 INLETS MEDIAN 2 GRATE	4.000 EACH		.		.
1000	611.8115 ADJUSTING INLET COVERS	2.000 EACH		.		.
1010	612.0206 PIPE UNDERDRAIN UNPERFORATED 6-INCH	32.000 LF		.		.
1020	612.0406 PIPE UNDERDRAIN WRAPPED 6-INCH	1,789.000 LF		.		.
1030	614.0905 CRASH CUSHIONS TEMPORARY	5.000 EACH		.		.
1040	616.0600.S FENCE TEMPORARY	550.000 LF		.		.
1050	619.1000 MOBILIZATION	1.000 EACH		.		.
1060	620.0300 CONCRETE MEDIAN SLOPED NOSE **P**	1,042.000 SF		.		.

CONTRACT: 20130611007 PROJECT(S): 1060-33-73 FEDERAL ID(S): N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1070	623.0200 DUST CONTROL SURFACE TREATMENT	42,298.000 SY		.		.
1080	624.0100 WATER	304.000 MGAL		.		.
1090	625.0105 TOPSOIL	8,919.000 CY		.		.
1100	625.0500 SALVAGED TOPSOIL **P**	29,586.000 SY		.		.
1110	627.0200 MULCHING	2,000.000 SY		.		.
1120	628.1504 SILT FENCE	6,808.000 LF		.		.
1130	628.1520 SILT FENCE MAINTENANCE	6,808.000 LF		.		.
1140	628.1905 MOBILIZATIONS EROSION CONTROL	3.000 EACH		.		.
1150	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL	3.000 EACH		.		.
1160	628.2004 EROSION MAT CLASS I TYPE B	87,477.000 SY		.		.
1170	628.2023 EROSION MAT CLASS II TYPE B	9,248.000 SY		.		.

CONTRACT: 20130611007 PROJECT(S): 1060-33-73 FEDERAL ID(S): N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1180	628.6510 SOIL STABILIZER TYPE B	5.100 ACRE		.		.
1190	628.7005 INLET PROTECTION TYPE A	83.000 EACH		.		.
1200	628.7010 INLET PROTECTION TYPE B	34.000 EACH		.		.
1210	628.7015 INLET PROTECTION TYPE C	69.000 EACH		.		.
1220	628.7020 INLET PROTECTION TYPE D	17.000 EACH		.		.
1230	628.7504 TEMPORARY DITCH CHECKS	113.000 LF		.		.
1240	628.7555 CULVERT PIPE CHECKS	2.000 EACH		.		.
1250	628.7560 TRACKING PADS	8.000 EACH		.		.
1260	629.0205 FERTILIZER TYPE A	3.000 CWT		.		.
1270	629.0210 FERTILIZER TYPE B	69.000 CWT		.		.
1280	630.0200 SEEDING TEMPORARY	2,775.000 LB		.		.

CONTRACT: 20130611007 PROJECT(S): 1060-33-73 FEDERAL ID(S): N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1290	630.0400 SEEDING NURSE CROP	739.000 LB		.		.
1300	631.0300 SOD WATER	163.000 MGAL		.		.
1310	631.1000 SOD LAWN	7,136.000 SY		.		.
1320	632.0101 TREES (SPECIES, ROOT, SIZE) 0001. ELM PROSPECTOR B&B 2 1/2 -INCH CAL	15.000 EACH		.		.
1330	632.0101 TREES (SPECIES, ROOT, SIZE) 0003. HACKBERRY COMMON B&B 2 1/2 -INCH CAL	15.000 EACH		.		.
1340	632.0101 TREES (SPECIES, ROOT, SIZE) 0005. OAK SWAMP WHITE B&B 2 1/2 -INCH CAL	16.000 EACH		.		.
1350	632.0101 TREES (SPECIES, ROOT, SIZE) 0007. LONDON PLANE B&B 2 1/2 -INCH CAL	9.000 EACH		.		.
1360	632.0101 TREES (SPECIES, ROOT, SIZE) 0009. TULIP B&B 2 1/2 -INCH CAL	17.000 EACH		.		.
1370	632.0101 TREES (SPECIES, ROOT, SIZE) 0011. CRABAPPLE CAMELOT B&B 2 -INCH CAL	33.000 EACH		.		.

CONTRACT: 20130611007 PROJECT(S): 1060-33-73 FEDERAL ID(S): N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1380	632.0101 TREES (SPECIES, ROOT, SIZE) 0013. HAWTHORN THORNLESS COCKSPUR B&B 2 -INCH CAL	17.000 EACH		.		.
1390	632.0101 TREES (SPECIES, ROOT, SIZE) 0015. MAPLE HEDGE	3.000 EACH		.		.
1400	632.9101 LANDSCAPE PLANTING SURVEILLANCE AND CARE CYCLES	24.000 EACH		.		.
1410	633.5200 MARKERS CULVERT END	1.000 EACH		.		.
1420	634.0616 POSTS WOOD 4X6-INCH X 16-FT	21.000 EACH		.		.
1430	634.0618 POSTS WOOD 4X6-INCH X 18-FT	3.000 EACH		.		.
1440	634.0816 POSTS TUBULAR STEEL 2X2-INCH X 16-FT	71.000 EACH		.		.
1450	635.0200 SIGN SUPPORTS STRUCTURAL STEEL HS	600.000 LB		.		.
1460	635.0300 SIGN SUPPORTS REPLACING BASE CONNECTION BOLTS	2.000 EACH		.		.
1470	636.0100 SIGN SUPPORTS CONCRETE MASONRY **P**	1.600 CY		.		.
1480	636.0500 SIGN SUPPORTS STEEL REINFORCEMENT	98.000 LB		.		.

CONTRACT: 20130611007 PROJECT(S): 1060-33-73 FEDERAL ID(S): N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1490	637.0202 SIGNS REFLECTIVE TYPE II	1,100.390 SF		.		.
1500	637.0402 SIGNS REFLECTIVE FOLDING TYPE II	59.680 SF		.		.
1510	638.2101 MOVING SIGNS TYPE I	1.000 EACH		.		.
1520	638.2102 MOVING SIGNS TYPE II	6.000 EACH		.		.
1530	638.2602 REMOVING SIGNS TYPE II	39.000 EACH		.		.
1540	638.3000 REMOVING SMALL SIGN SUPPORTS	30.000 EACH		.		.
1550	638.3100 REMOVING STRUCTURAL STEEL SIGN SUPPORTS	2.000 EACH		.		.
1560	638.3620 ERECTING STATE OWNED SIGNS TYPE II	2.000 EACH		.		.
1570	638.4100 MOVING STRUCTURAL STEEL SIGN SUPPORTS	2.000 EACH		.		.
1580	641.8100 OVERHEAD SIGN SUPPORT (STRUCTURE) 0001. S-40-638	LUMP	LUMP			.
1590	643.0100 TRAFFIC CONTROL (PROJECT) 0001. 1060-33-73	1.000 EACH		.		.

CONTRACT: 20130611007 PROJECT(S): 1060-33-73 FEDERAL ID(S): N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
	643.0300 TRAFFIC CONTROL					
1600	DRUMS	6,260.000 DAY		.		.
	643.0410 TRAFFIC CONTROL					
1610	BARRICADES TYPE II	89.000 DAY		.		.
	643.0420 TRAFFIC CONTROL					
1620	BARRICADES TYPE III	3,586.000 DAY		.		.
	643.0453 TRAFFIC CONTROL					
1630	BARRICADES PERMANENT TYPE III	7.000 EACH		.		.
	643.0705 TRAFFIC CONTROL					
1640	WARNING LIGHTS TYPE A	7,172.000 DAY		.		.
	643.0715 TRAFFIC CONTROL					
1650	WARNING LIGHTS TYPE C	1,582.000 DAY		.		.
	643.0800 TRAFFIC CONTROL					
1660	ARROW BOARDS	82.000 DAY		.		.
	643.0900 TRAFFIC CONTROL					
1670	SIGNS	6,557.000 DAY		.		.
	643.0910 TRAFFIC CONTROL					
1680	COVERING SIGNS TYPE I	20.000 EACH		.		.
	643.0920 TRAFFIC CONTROL					
1690	COVERING SIGNS TYPE II	40.000 EACH		.		.
	643.1000 TRAFFIC CONTROL					
1700	SIGNS FIXED MESSAGE	277.000 SF		.		.

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1710	643.1050 TRAFFIC CONTROL SIGNS PCMS	113.000 DAY		.		.
1720	643.2000 TRAFFIC CONTROL DETOUR (PROJECT) 0001. 1060-33-73	1.000 EACH		.		.
1730	643.3000 TRAFFIC CONTROL DETOUR SIGNS	4,184.000 DAY		.		.
1740	645.0120 GEOTEXTILE FABRIC TYPE HR **P**	12.000 SY		.		.
1750	646.0106 PAVEMENT MARKING EPOXY 4-INCH	30,145.000 LF		.		.
1760	646.0126 PAVEMENT MARKING EPOXY 8-INCH	1,894.000 LF		.		.
1770	646.0156 PAVEMENT MARKING EPOXY 18-INCH	62.000 LF		.		.
1780	646.0600 REMOVING PAVEMENT MARKINGS	3,576.000 LF		.		.
1790	646.0841.S PAVEMENT MARKING GROOVED WET REFLECTIVE CONTRAST TAPE 4-INCH	1,309.000 LF		.		.
1800	646.0843.S PAVEMENT MARKING GROOVED WET REFLECTIVE CONTRAST TAPE 8-INCH	2,467.000 LF		.		.

CONTRACT: 20130611007 PROJECT(S): 1060-33-73 FEDERAL ID(S): N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1810	647.0456 PAVEMENT MARKING CURB EPOXY	152.000 LF		.		.
1820	647.0566 PAVEMENT MARKING STOP LINE EPOXY 18-INCH	104.000 LF		.		.
1830	647.0606 PAVEMENT MARKING ISLAND NOSE EPOXY	4.000 EACH		.		.
1840	647.0746 PAVEMENT MARKING DIAGONAL EPOXY 24-INCH	243.000 LF		.		.
1850	649.0400 TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH	9,187.000 LF		.		.
1860	649.0801 TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 8-INCH	425.000 LF		.		.
1870	649.2100 TEMPORARY RAISED PAVEMENT MARKERS	73.000 EACH		.		.
1880	652.0125 CONDUIT RIGID METALLIC 2-INCH	338.000 LF		.		.
1890	652.0210 CONDUIT RIGID NONMETALLIC SCHEDULE 40 1-INCH	60.000 LF		.		.
1900	652.0225 CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH	4,762.000 LF		.		.
1910	652.0235 CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH	838.000 LF		.		.

CONTRACT: 20130611007 PROJECT(S): 1060-33-73 FEDERAL ID(S): N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1920	652.0405 CONDUIT REINFORCED THERMOSETTING RESIN 2-INCH	35.000 LF		.		.
1930	652.0700.S INSTALL CONDUIT INTO EXISTING ITEM	2.000 EACH		.		.
1940	653.0135 PULL BOXES STEEL 24X36-INCH	8.000 EACH		.		.
1950	653.0140 PULL BOXES STEEL 24X42-INCH	8.000 EACH		.		.
1960	653.0220 JUNCTION BOXES 18X6X6-INCH	3.000 EACH		.		.
1970	653.0222 JUNCTION BOXES 18X12X6-INCH	15.000 EACH		.		.
1980	653.0905 REMOVING PULL BOXES	3.000 EACH		.		.
1990	654.0101 CONCRETE BASES TYPE 1	2.000 EACH		.		.
2000	654.0105 CONCRETE BASES TYPE 5	27.000 EACH		.		.
2010	654.0217 CONCRETE CONTROL CABINET BASES TYPE 9 SPECIAL	1.000 EACH		.		.
2020	655.0146 CABLE IN DUCT 4-6 AWG	2,348.000 LF		.		.

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
2030	655.0505 ELECTRICAL WIRE TRAFFIC SIGNALS 14 AWG	2,670.000 LF		.		.
2040	655.0610 ELECTRICAL WIRE LIGHTING 12 AWG	4,788.000 LF		.		.
2050	655.0615 ELECTRICAL WIRE LIGHTING 10 AWG	160.000 LF		.		.
2060	655.0625 ELECTRICAL WIRE LIGHTING 6 AWG	11,442.000 LF		.		.
2070	655.0635 ELECTRICAL WIRE LIGHTING 2 AWG	282.000 LF		.		.
2080	656.0200 ELECTRICAL SERVICE METER BREAKER PEDESTAL (LOCATION) 0001. CB-CCTV-40-0145	LUMP	LUMP			.
2090	656.0400 ELECTRICAL SERVICE MAIN LUGS ONLY METER PEDESTAL (LOCATION) 0001. SB	LUMP	LUMP			.
2100	656.0500 ELECTRICAL SERVICE BREAKER DISCONNECT BOX (LOCATION) 0001. CB-CCTV-40-0145	LUMP	LUMP			.
2110	657.0100 PEDESTAL BASES	2.000 EACH		.		.
2120	657.0255 TRANSFORMER BASES BREAKAWAY 11 1/2-INCH BOLT CIRCLE	25.000 EACH		.		.

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
2130	657.0322 POLES TYPE 5-ALUMINUM	36.000 EACH		.		.
2140	657.0420 TRAFFIC SIGNAL STANDARDS ALUMINUM 13-FT	1.000 EACH		.		.
2150	657.0430 TRAFFIC SIGNAL STANDARDS ALUMINUM 10-FT	1.000 EACH		.		.
2160	657.0615 LUMINAIRE ARMS SINGLE MEMBER 4 1/2-INCH CLAMP 8-FT	36.000 EACH		.		.
2170	659.0802 PLAQUES SEQUENCE IDENTIFICATION	38.000 EACH		.		.
2180	661.0200 TEMPORARY TRAFFIC SIGNALS FOR INTERSECTIONS (LOCATION) 0001. W. WATERTOWN PLANK RD & DISCOVERY PARKWAY	LUMP	LUMP			.
2190	670.0100 FIELD SYSTEM INTEGRATOR 0001. FTMS	LUMP	LUMP			.
2200	670.0200 ITS DOCUMENTATION 0001. FTMS	LUMP	LUMP			.
2210	671.0112 CONDUIT HDPE 1-DUCT 2-INCH	1,070.000 LF		.		.
2220	671.0132 CONDUIT HDPE 3-DUCT 2-INCH	1,355.000 LF		.		.

CONTRACT: 20130611007 PROJECT(S): 1060-33-73 FEDERAL ID(S): N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
2230	671.0212 CONDUIT HDPE DIRECTIONAL BORE 1-DUCT 2-IN	90.000 LF		.		.
2240	672.0250 BASE CAMERA POLE 50-FT	1.000 EACH		.		.
2250	673.0105 COMMUNICATION VAULT TYPE 1	7.000 EACH		.		.
2260	673.0225.S INSTALL POLE MOUNTED CABINET	1.000 EACH		.		.
2270	674.0300 REMOVE CABLE	1,613.000 LF		.		.
2280	675.0400.S INSTALL ETHERNET SWITCH	1.000 EACH		.		.
2290	677.0100 INSTALL CAMERA POLE	1.000 EACH		.		.
2300	677.0200 INSTALL CAMERA ASSEMBLY	1.000 EACH		.		.
2310	677.0300.S INSTALL VIDEO ENCODER	1.000 EACH		.		.
2320	678.0006 INSTALL FIBER OPTIC CABLE OUTDOOR PLANT 6-CT	5,170.000 LF		.		.
2330	678.0400 FIBER OPTIC TERMINATION	6.000 EACH		.		.

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
2340	678.0500 COMMUNICATION SYSTEM TESTING 0001. FTMS	LUMP LUMP	LUMP			.
2350	690.0150 SAWING ASPHALT	2,998.000 LF		.		.
2360	690.0250 SAWING CONCRETE	768.000 LF		.		.
2370	SPV.0035 SPECIAL 0030. EXCAVATION HAULING AND REUSE OF SOLID WASTE SOIL	45,960.000 CY		.		.
2380	SPV.0035 SPECIAL 0031. CLAY CAP	7,446.000 CY		.		.
2390	SPV.0035 SPECIAL 4000. HPC MASONRY STRUCTURES **P**	882.000 CY		.		.
2400	SPV.0035 SPECIAL 8001. DETENTION BASIN CLAY LINING **P**	673.000 CY		.		.
2410	SPV.0055 SPECIAL 0010. LANE RENTAL ASSESSMENT	1.000 DOL	1.00000		1.00	
2420	SPV.0060 SPECIAL 0010. PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC ARROW TYPE 1	2.000 EACH		.		.
2430	SPV.0060 SPECIAL 0011. PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC ARROW TYPE 2	8.000 EACH		.		.

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
2440	SPV.0060 SPECIAL 0012. PAVEMENT MARKING GROOVED PREFORMED THERMAPLASTIC WORDS	10.000 EACH		.		.
2450	SPV.0060 SPECIAL 0014. MOBILIZATION EMERGENCY PAVEMENT REPAIR	1.000 EACH		.		.
2460	SPV.0060 SPECIAL 0015. TRAFFIC CONTROL CLOSE-OPEN FREEWAY ENTRANCE RAMP	25.000 EACH		.		.
2470	SPV.0060 SPECIAL 0016. TRAFFIC CONTROL INTERIM FREEWAY LANE CLOSURE	85.000 EACH		.		.
2480	SPV.0060 SPECIAL 0017. TRAFFIC CONTROL COVERING SIGNS TYPE I LEFT IN PLACE	2.000 EACH		.		.
2490	SPV.0060 SPECIAL 0018. TRAFFIC CONTROL COVERING SIGNS TYPE II LEFT IN PLACE	2.000 EACH		.		.
2500	SPV.0060 SPECIAL 0020. EXPOSING EXISTING UTILITY	30.000 EACH		.		.
2510	SPV.0060 SPECIAL 0021. REMOVING GATE	1.000 EACH		.		.
2520	SPV.0060 SPECIAL 0022. STRAW BALES	300.000 EACH		.		.
2530	SPV.0060 SPECIAL 0023. TRAFFIC CONTROL DRUMS LEFT IN PLACE	20.000 EACH		.		.

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
2540	SPV.0060 SPECIAL 0024. REMOVING WROUGHT IRON GATE	1.000 EACH		.		.
2550	SPV.0060 SPECIAL 0025. BURY EXISTING TYPE 1 MANHOLE	1.000 EACH		.		.
2560	SPV.0060 SPECIAL 1010. LAMP DISPOSAL HIGH INTENSITY DISCHARGE	8.000 EACH		.		.
2570	SPV.0060 SPECIAL 1020. SALVAGING LIGHT POLES LUMINAIRES AND ARMS	2.000 EACH		.		.
2580	SPV.0060 SPECIAL 1023. SALVAGING LUMINAIRES-WAUWATOSA	22.000 EACH		.		.
2590	SPV.0060 SPECIAL 1024. SALVAGING LIGHT POLES ARMS AND LUMINAIRES - MILWUAKEE COUNTY	4.000 EACH		.		.
2600	SPV.0060 SPECIAL 1030. REMOVING LIGHTING UNIT	1.000 EACH		.		.
2610	SPV.0060 SPECIAL 1031. REMOVING ALUMINUM LIGHT POLES AND ARMS	8.000 EACH		.		.
2620	SPV.0060 SPECIAL 1032. REMOVING CONCRETE LIGHT POLES AND ARMS	14.000 EACH		.		.
2630	SPV.0060 SPECIAL 1060. LUMINAIRE LED	36.000 EACH		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
2640	SPV.0060 SPECIAL 1120. DISTRIBUTION CENTER LIGHTING - WAUWATOSA	1.000 EACH		.		.
2650	SPV.0060 SPECIAL 2004. GROUND ROD	1.000 EACH		.		.
2660	SPV.0060 SPECIAL 2005. SALVAGE TRAVELER ADVISORY RADIO FLASHER ASSEMBLY	1.000 EACH		.		.
2670	SPV.0060 SPECIAL 2006. REMOVING CONTROLLER CABINET	1.000 EACH		.		.
2680	SPV.0060 SPECIAL 2007. REMOVING CONTROLLER CABINET BASE	1.000 EACH		.		.
2690	SPV.0060 SPECIAL 2013. REMOVING ELECTRICAL SERVICE METER BREAKER PEDESTAL	1.000 EACH		.		.
2700	SPV.0060 SPECIAL 2015. INSTALL SALVAGED TRAVELER ADVISORY RADIO FLASHER ASSEMBLY	1.000 EACH		.		.
2710	SPV.0060 SPECIAL 2016. INSTALL SOLAR POWER SYSTEM ASSEMBLY	1.000 EACH		.		.
2720	SPV.0060 SPECIAL 2018. INSTALL TEMPORARY VEHICLE DETECTOR ASSEMBLY	1.000 EACH		.		.
2730	SPV.0060 SPECIAL 2019. REFOCUSING TEMPORARY VEHICLE DETECTOR ASSEMBLY	3.000 EACH		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
2740	SPV.0060 SPECIAL 3001. POLES TYPE 10	2.000 EACH		.		.
2750	SPV.0060 SPECIAL 3002. CONCRETE BASES TYPE 10 CONTRACTOR SUPPLIED ANCHOR BOLTS & ROD TEMPLATE	2.000 EACH		.		.
2760	SPV.0060 SPECIAL 4100. ANCHOR ASSEMBLIES LIGHT POLES STRUCTURES	11.000 EACH		.		.
2770	SPV.0060 SPECIAL 4110. PILE DYNAMIC ANALYZER (PDA) TESTING	4.000 EACH		.		.
2780	SPV.0060 SPECIAL 4120. PILE DYNAMIC ANALYZER (PDA) RESTRIKES	4.000 EACH		.		.
2790	SPV.0060 SPECIAL 5000. RESILIENT WEDGE GATE VALVE 6 INCH	9.000 EACH		.		.
2800	SPV.0060 SPECIAL 5001. RESILIENT WEDGE GATE VALVE 8 INCH	1.000 EACH		.		.
2810	SPV.0060 SPECIAL 5002. HYDRANT ASSEMBLY	9.000 EACH		.		.
2820	SPV.0060 SPECIAL 5003. BUTTERFLY VALVE 16 INCH	6.000 EACH		.		.
2830	SPV.0060 SPECIAL 5004. BUTTERFLY VALVE 12 INCH	2.000 EACH		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
2840	SPV.0060 SPECIAL 5005. CUT AND CAP WATER MAIN	3.000 EACH		.		.
2850	SPV.0060 SPECIAL 5006. SALVAGE HYDRANT	4.000 EACH		.		.
2860	SPV.0060 SPECIAL 5007. ABANDON EXISTING SANITARY MANHOLE	3.000 EACH		.		.
2870	SPV.0060 SPECIAL 7010. CROSSROAD NAME SIGNS SPECIAL SIGN SUPPORTS	5.000 EACH		.		.
2880	SPV.0060 SPECIAL 7011. CONC FOUNDATION ADVANCED CROSSROAD NAME SIGNS SPECIAL SIGN SUPPORT	5.000 EACH		.		.
2890	SPV.0060 SPECIAL 8004. INLET COVERS TYPE 57	4.000 EACH		.		.
2900	SPV.0060 SPECIAL 8015. PIPE CONNECTION TO EXISTING STRUCTURE	1.000 EACH		.		.
2910	SPV.0060 SPECIAL 8017. SEDIMENTATION BASIN	2.000 EACH		.		.
2920	SPV.0060 SPECIAL 8018. REMOVING BULKHEAD	2.000 EACH		.		.
2930	SPV.0060 SPECIAL 8050. WELDING STORM SEWER COVERS	16.000 EACH		.		.

CONTRACT: 20130611007 PROJECT(S): 1060-33-73 FEDERAL ID(S): N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
2940	SPV.0060 SPECIAL 8061. REMOVE AND CAP EXISTING DRAINAGE STORM SEWER STRUCTURE	1.000 EACH		.		.
2950	SPV.0075 SPECIAL 0010. TRUCK MOUNTED ATTENUATOR	150.000 HRS		.		.
2960	SPV.0075 SPECIAL 4200. DRILLED FOUNDATION SHAFT OBSTRUCTIONS	10.000 HRS		.		.
2970	SPV.0085 SPECIAL 0010. SEEDING NATIVE SEED BUTTERFLY MIX	370.000 LB		.		.
2980	SPV.0090 SPECIAL 0010. PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC STOP LINE 18-INCH	102.000 LF		.		.
2990	SPV.0090 SPECIAL 0011. PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC CROSSWALK 6-INCH	1,056.000 LF		.		.
3000	SPV.0090 SPECIAL 0013. PAVEMENT MARKING GROOVED PREFORMED PLASTIC TAPE 4-INCH	4,985.000 LF		.		.
3010	SPV.0090 SPECIAL 0014. LOW PROFILE CONCRETE BARRIER	411.000 LF		.		.
3020	SPV.0090 SPECIAL 0015. LOW PROFILE CONCRETE BARRIER END SECTION	123.000 LF		.		.
3030	SPV.0090 SPECIAL 0016. FENCE TEMPORARY LEFT IN PLACE	397.000 LF		.		.

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
3040	SPV.0090 SPECIAL 0017. CONCRETE BARRIER TEMPORARY PRECAST LEFT IN PLACE	675.000 LF		.		.
3050	SPV.0090 SPECIAL 0020. REMOVING WROUGHT IRON FENCE	155.000 LF		.		.
3060	SPV.0090 SPECIAL 4300. FENCE DECORATIVE BRIDGE	499.000 LF		.		.
3070	SPV.0090 SPECIAL 4310. FENCE DECORATIVE WALL	1,426.000 LF		.		.
3080	SPV.0090 SPECIAL 4320. DRILLED FOUNDATION SHAFT 34.75-INCH **P**	1,080.000 LF		.		.
3090	SPV.0090 SPECIAL 5000. DUCTILE IRON (D) CLASS 55 WATER MAIN 16 INCH	1,940.000 LF		.		.
3100	SPV.0090 SPECIAL 5001. DUCTILE IRON (D) CLASS 55 WATER MAIN 12 INCH	159.000 LF		.		.
3110	SPV.0090 SPECIAL 5002. DUCTILE IRON (D) CLASS 55 WATER MAIN 16 INCH W/30 IN STEEL CASTING PIPE	238.000 LF		.		.
3120	SPV.0090 SPECIAL 5003. ABANDON EXISTING 6 INCH SANITARY SEWER	288.000 LF		.		.
3130	SPV.0090 SPECIAL 5004 ABANDON EXISTING 8 INCH SANITARY SEWER	593.000 LF		.		.

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
3140	SPV.0090 SPECIAL 8001. PIPE UNDERDRAIN 6-INCH SPECIAL	3,796.000 LF		.		.
3150	SPV.0105 SPECIAL 0001. SURVEY PROJECT 1060-33-73	LUMP	LUMP			.
3160	SPV.0105 SPECIAL 0002. PAVEMENT CLEANUP	LUMP	LUMP			.
3170	SPV.0105 SPECIAL 0003. REMOVING FORMER GREENHOUSE BUILDINGS	LUMP	LUMP			.
3180	SPV.0105 SPECIAL 0004. REMOVING FORMER SALT DOME BUILDINGS	LUMP	LUMP			.
3190	SPV.0105 SPECIAL 0005. CONCRETE PAVEMENT JOINT LAYOUT	LUMP	LUMP			.
3200	SPV.0105 SPECIAL 1006. MAINTENANCE OF LIGHTING SYSTEMS- SWAN BLVD	LUMP	LUMP			.
3210	SPV.0105 SPECIAL 3001. TEMP EVP SYS W. WATERTOWN PLANK ROAD & DISCOVERY PARKWAY	LUMP	LUMP			.
3220	SPV.0105 SPECIAL 4400. TRIAL DRILLED FOUNDATION SHAFT	LUMP	LUMP			.
3230	SPV.0105 SPECIAL 8002. DEWATERING FOR DETENTION BASIN CONSTRUCTION	LUMP	LUMP			.

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3240	SPV.0165 SPECIAL 0010. CONCRETE SIDEWALK 5-INCH SPECIAL	11,171.000 SF		.		.
3250	SPV.0165 SPECIAL 4600. LONGITUDINAL GROOVING BRIDGE DECK	13,770.000 SF		.		.
3260	SPV.0165 SPECIAL 4610. WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/QMP PILOT **P**	23,395.000 SF		.		.
3270	SPV.0165 SPECIAL 4620. WALL WIRE FACE MECHANICALLY STABILIZED EARTH LRFD/QMP PILOT **P**	4,891.000 SF		.		.
3280	SPV.0165 SPECIAL 4630. TEMP WALL WIRE FACED MECHANICALLY STABILIZED EARTH LRFD/QMP PILOT **P**	423.000 SF		.		.
3290	SPV.0165 SPECIAL 4640. PRESTRESSED PRECAST CONCRETE WALL PANEL **P**	4,508.000 SF		.		.
3300	SPV.0180 SPECIAL 0010. CONCRETE PAVEMENT 8-INCH SPECIAL	1,242.000 SY		.		.
3310	SPV.0180 SPECIAL 0011. CONCRETE PAVEMENT REPAIR SPECIAL	375.000 SY		.		.
3320	SPV.0180 SPECIAL 0012. WATERPROOF MEMBRANE	1,850.000 SY		.		.

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3330	SPV.0195 SPECIAL 0010. MANAGEMENT OF SOLID WASTE	6,963.000 TON		.		.
	SECTION 0001 TOTAL					.
	TOTAL BID					.

PLEASE ATTACH SCHEDULE OF ITEMS HERE