

## Special Provisions

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**SPECIAL PROVISIONS**

**1. General.**

Perform the work under this construction contract for Project 1060-11-73, East-West Freeway, 70<sup>th</sup> to 16<sup>th</sup> Street, IH 94, in 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, 2020 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 (20190618)

**2. Scope of Work.**

The work under this contract shall consist of concrete surface repair, column repair, bearing rehabilitation, bearing replacement, traffic control 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 proceed.

Do not begin construction before July 20<sup>th</sup>, 2020.

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.

Do not begin or continue any work that closes the freeway or ramps outside the allowed time periods specified in this article or the article "Traffic." Work on IH-94 and ramp shoulders is only allowed during off-peak and night time hours. Work may not be performed during peak traffic periods.

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.

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

Indicate on the proposed schedule of operations that a large force and adequate equipment will be needed to assure that the work will be completed within the established contract time.

The department will not grant time extension for the following:

1. Severe weather as specified in standard spec 108.10.2.2.
2. Labor disputes that are not industry wide.
3. Delays in material deliveries.

If contract time expires before completing all work on all contract projects, additional liquidated damages will be affixed in accordance to standard spec 108.11.

The contractor is advised that there may be multiple mobilizations and/or remobilizations to complete construction operations, for example, such items as: traffic control, bridge maintenance, finishing items and other incidental items. No additional payment will be made, by the department, for additional mobilizations.

The traffic control and staging shall conform to the requirements described below and as shown in the plans, unless modifications are approved in writing by the engineer. Submit all traffic control change requests to the engineer at least 48 hours prior to an actual traffic control change.

When, in the fall of 2020, after completion of all work on structures worked on in the 2020 construction season, and weather conditions or seasonal restrictions preclude the satisfactory performance of further work under this contract, the engineer will, in writing, suspend operations until the spring of 2021. Construction operations shall be resumed in the spring of 2021 within ten days after the date on which a written order to do so has been issued by the engineer.

0031 (20090901)

For the various bridge rehabilitation activities whose relevant dimensions are shown on the structure plans, these dimensions shown are based on the original structure plans. The contractor shall verify all dimensions in the field prior to fabrication and construction.

### **Schedule of Operations**

Stages may be constructed in any order, with the approval of the engineer.

Over STH 175:	Over S 68 <sup>th</sup> St:	Over 44 <sup>th</sup> St:
• B-40-039	• B-40-084	• B-40-049-003
• B-40-049-001	• B-40-085	Over 32 <sup>nd</sup> St:
• B-40-042	Over S 70 <sup>th</sup> St:	• B-40-033
• B-40-049-002	• B-40-087	On N 35 <sup>th</sup> St:
• B-40-041	Over N General Mitchell Blvd:	• B-40-015
Over Hawley Rd:	• B-40-046	On STH 57:
• B-40-081	• B-40-047	• B-40-043
Over S 64 <sup>th</sup> St:	Over Yount Dr:	On N 26 <sup>th</sup> St:
• B-40-082	• B-40-037	• B-40-057
• B-40-083	• B-40-038	On N 25 <sup>th</sup> St:
		• B-40-034
		On N 16 <sup>th</sup> St:
		• B-550-018

The following are a list of work restrictions which may impact the sequence of construction operations.

- The following closures are allowed only during off-peak hours outlined in Non-Freeway Work Restrictions for a maximum of 5 days per structure. When a bridge is being worked on closure of these roads shall be limited to the minimum amount of work time required for the bridge.
- 70<sup>th</sup> St or 68<sup>th</sup> St may not be closed at the same time as Hawley Rd.
- N General Mitchell Blvd and Yount Dr may only be closed on days there is not a Milwaukee Brewers home game or special event at Miller Park.
- STH 175 NB closures shall follow the same restrictions as mainline IH 94.
- Full closures will be allowed on the following side roads: 70<sup>th</sup> St for B-40-87
  - 68<sup>th</sup> St for B-40-85/84
  - 64<sup>th</sup> St for B-40-83/82
  - Hawley Rd for B-40-081
  - Mitchell Blvd for B-40-46/47
  - Yount Dr. for B-40-37/38
  - 44<sup>th</sup> St for B-40-49-003
  - 32<sup>nd</sup> St for B-40-33
- The following side roads shall be staged as shown in the plans
  - STH 175 NB for Bridges B-40-041, B-40-042, and B-40-49-001
  - 27<sup>th</sup> St for B-40-43

The department anticipates that the work scheduled for each stage shall be as follows:

### **Stage 1: West Segment of IH 94, 70<sup>th</sup> St to Hawley Road Bridges**

- Complete all rehabilitation work indicated on the plans, including concrete surface repairs, bearing rehabilitations, and bearing replacement.
- Bridges in this stage are as follows: B-40-87 and B-40-86 over 70<sup>th</sup> Street, B-40-85 and B-40-84 over 68<sup>th</sup> Street, B-40-83 and B-40-83 over 64<sup>th</sup> Street, and B-40-81 over Hawley Rd.

### **Stage 2: Stadium Segment of IH 94, Hawley Road to 44<sup>th</sup> St Bridges**

- Complete all rehabilitation work indicated on the plans, including concrete surface repairs, bearing rehabilitations, and bearing replacement.
- Bridges in this stage are as follows: B-40-46 and B-40-47 over N General Mitchell Blvd., B-40-37 and B-40-38 over Yount Dr., B-40-39 over IH 94 EB, B-40-41 and B-40-42 over STH 175 NB, B-40-49-001 and B-40-49-002 over IH 94 WB, and B-40-49-003 over 44<sup>th</sup> St.

### **Stage 3: East Segment of IH 94, 35<sup>th</sup> St to 16<sup>th</sup> St Bridges**

- Complete all rehabilitation work indicated on the plans, including concrete surface repairs, bearing rehabilitations, and bearing replacement.
- Bridges in this stage are as follows: B-40-46 and B-40-47 over N General Mitchell Blvd., B-40-37 and B-40-38 over Yount Dr., B-40-39 over IH 94 EB, B-40-41 and B-40-42 over STH 175 NB, B-40-49-001 and B-40-49-002 over IH 94 WB, and B-40-49-003 over 44<sup>th</sup> St.

### **Detours**

Refer to detour plans for detour routes. Detour and ramp closure restrictions include:

- Ramps EN and ES of the stadium interchange may not be closed simultaneously
- Both the on and off ramps at Mitchell Blvd and the on ramp at 35<sup>th</sup> Street must be closed for closing the WS ramp of the stadium interchange
- STH 175 NB East Lanes cannot be closed at the same time as the WN, NE, or NW ramps which are closed in stages 2A and 2D.

### **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.

Provide an individual to serve as the contractor's sole point of contact for field utility coordination and communication for the duration of the project.

### **Ramp Closures**

The eastbound entrance and exit ramp from Mitchell Boulevard may only be closed on days there is not a Milwaukee Brewers home game or special event at Miller Park.

All entrance and exit ramps shall be posted three business days in advance of their closure with dates and time of closure.

Consecutive service ramp closures are not permitted with the following exceptions:

- 35<sup>th</sup> St and 28<sup>th</sup> St entrance ramps in substage 1A
- STH 181 and 70<sup>th</sup> / 68<sup>th</sup> St entrance ramps in substage 1C
- 35<sup>th</sup> St and St Paul Ave entrance ramps in substage 2A
- N General Mitchell Blvd and 35<sup>th</sup> St exit ramps in substage 2A
- 70<sup>th</sup> St and Hawley Rd entrance ramps in substage 2C
- 35<sup>th</sup> St and 25<sup>th</sup> St Exit Ramps in substage 3A
- 35<sup>th</sup> St, 26<sup>th</sup> St, and 16<sup>th</sup> exit ramps in substage 3C
- 35<sup>th</sup> St and St Paul Ave entrance ramps in substage 3C

Closure of system ramps in the Stadium Interchange shall follow the Freeway Work Restrictions and are limited to off peak and night time hours.

### **Portable Changeable Message Signs**

Obtain acceptance from the engineer regarding the wording of all messages on portable changeable message signs prior to placing the message.

## **Work Restrictions**

### **Freeway Work Restrictions**

Full freeway closures are not permitted on IH 94. The full freeway closure hours pertain to IH 794.

#### **Definitions**

The following definitions apply to this contract for freeway work restrictions:

##### **Peak Hours**

5:30 AM – 9:30 PM Monday, Tuesday, Wednesday, Thursday (2-3 lane segments)

5:30 AM – 7:00 PM Monday, Tuesday, Wednesday, Thursday (4 or more lane segments)

5:30 AM – 11:00 PM Friday (All segments)

##### **Weekend Peak Hours**

8:00 AM – 11:00 PM Saturday

8:00 AM – 9:30 PM Sunday (2-3 lane segments)

8:00 AM – 7:00 PM Sunday (4 or more lane segments)

##### **Weekday Off-Peak Hours**

9:30 PM – 11:00 PM Monday, Tuesday, Wednesday, Thursday (2-3 lane segments)

7:00 PM – 9:30 PM Monday, Tuesday, Wednesday, Thursday (4 or more lane segments)

##### **Weekend Off-Peak Hours**

9:30 PM – 11:00 PM Sunday (2-3 lane segments)

7:00 PM – 9:30 PM Sunday (4 or more lane segments)

##### **Night Time Hours**

11:00 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)  
(2-3 lane segments)

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)  
(4 lane segments)

11:00 PM – 8:00 AM (Friday PM to Saturday AM, Saturday PM to Sunday AM)

##### **Full Freeway Closure/Hours (IH 794)**

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)

11:00 PM – 6:00 AM (Friday PM to Saturday AM, Saturday PM to Sunday AM)

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

Do not close freeway lanes or shoulders and ensure that the freeways are entirely clear for traffic during Weekday Peak Hours and Weekend Peak Hours. One freeway lane and/or shoulder may be closed on the freeway and system ramps, during Weekday Off-Peak Hours and Weekend Off-Peak Hours, but it must be approved by the engineer. Provide a minimum of one lane in each direction of the freeway that is entirely clear for traffic during Night Time Hours except as allowed during full closure. Service ramp closures will be permitted daily from 9:00 PM to 6:00 AM (Sunday – Thursday) and 10:30 PM to 8:30 AM (Friday – Saturday) unless otherSTHe approved by the engineer for safety or operational reasons associated with other adjacent lane closures.

Do not begin or continue any work that closes traffic lanes outside the allowed time periods specified in this contract. If the contractor fails to open freeway lanes of traffic and/or ramps to traffic by the specified times, assessments will be made as shown in the Lane Rental Fee Assessment article.

Full closure and detouring of freeway roads will be restricted to Full Freeway Closure Hours. The freeway may be closed to perform work related to major traffic shifts. Provide signed detour routes, as the plans show. Prior to using a detour route ensure that the route is open and free of construction.

sef-107-035 (20180627)

### **Non-Freeway Work Restrictions**

#### **Definitions**

The following definitions apply to this contract for non-freeway 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 PM to Tuesday AM, Tuesday PM to Wednesday AM, Wednesday PM to Thursday AM, Thursday PM to Friday AM)  
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

Make at least two lanes available to traffic during the Peak Hours unless approved by the engineer. Full closures may be used during Off-Peak Hours only, providing that consecutive local roads are not closed.

Comply with all local ordinances that apply to local street work operations, including those pertaining to working during off peak hours. Furnish any ordinance variance issued by the municipality or required permits to the engineer in writing 3 days before performing this work.

**Migratory Birds**

Swallow and other migratory birds' nests have been observed on or under the existing bridge. All active nests (when eggs or young are present) of migratory birds are protected under the federal Migratory Bird Treaty Act.

The nesting season for swallows and other birds is usually between May 1 and August 30. For the 2020 season, work on structures may begin prior to August 30 provided that a survey is completed, and no active nests are found with approval of the Engineer in the field. For the 2021 season, either prevent active nests from becoming established or apply for a depredation permit from the US Fish and Wildlife Service for work that may disturb or destroy active nests. The need for a permit may be avoided by removing the existing bridge structure prior to nest occupation by birds or clearing nests from all structures before the nests become active in early spring. As a last resort, prevent birds from nesting by installing a suitable netting device on the remaining structure prior to nesting activity. Include the cost for preventing nesting in the cost of Concrete Surface Repairs.

0074 (20090901)

**4. Traffic**

The work under this item shall conform to the requirements of standard spec 643, the Manual on Uniform Traffic Control Devices (MUTCD), and as hereinafter provided.

All traffic control devices shall be in the proper location and in proper working order prior to work operations taking place.

Maintain all private and field entrance access for local residents and emergency vehicles at all times throughout construction.

Complete the construction sequence and the associated traffic control and detours as detailed on the plans and described herein.

**General**

Keep IH 41, IH 43, IH 94, IH 794, all system ramps and all service ramps open to through traffic at all times for the duration of this project except as noted below and in the Prosecution and Progress article in these special provisions.

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 shown on the plans.

**This project requires work in various locations. Stages and substages have been laid out to show where lane shifts are allowed and how access is to be maintained.** Traffic shifts shown in a given stage may occur at different times during that stage depending on the controlling elements and as approved or directed by the engineer.

Lane closures on mainline IH 94 may be needed for construction or to provide a safe work zone.

Refer to the plans and Standard Detail Drawings for further information.

Service ramps may be closed as needed and as outlined in these special provisions.

System ramps may be closed as shown in the plans and outlined in these special provisions.

Side roads may be closed as shown in the plans and outlined in these special provisions.

### **Stage 1: West Segment of IH 94, 70<sup>th</sup> Street to Hawley Road**

The department anticipates the schedule of major traffic shifts and roadway closures for each substage of Stage 1 shall be as follows.

For bridges in this stage, most of the work is expected to be under the freeway on side roads.

The bridges in this stage and their respective side roads are as follows:

B-40-87 over 70<sup>th</sup> Street  
B-40-85 and B-40-84 over 68<sup>th</sup> Street  
B-40-83 and B-40-82 over 64<sup>th</sup> Street  
B-40-81 over Hawley Rd

As needed for work on top or underneath the bridge or for safety, install traffic control devices as detailed on the plans for the following closures:

#### **Stage 1A**

- Close the outside half of westbound IH 94
- The north to west system ramp in the Stadium Interchange may be closed as shown in the staging plans, in order to complete work on the ramp, or due to the proximity of the work zone.

#### **Stage 1B**

- Close the inside half of westbound IH 94
- The south to west system ramp in the Stadium Interchange may be closed as shown in the staging plans, in order to complete work on the ramp, or due to the proximity of the work zone.

#### **Stage 1C**

- Close the outside half of eastbound IH 94

#### **Stage 1D**

- Close the inside half of eastbound IH 94

### **Stage 2: Stadium Interchange IH 94, Hawley Road to 44<sup>th</sup> Street**

The department anticipates the schedule of major traffic shifts and roadway closures for each substage of Stage 2 shall be as follows.

For bridges in this stage, work is required over IH 94, Stadium Interchange Ramps and side roads.

The bridges in this stage are as follows:

B-40-47 and B-40-46 over N General Mitchell Blvd.  
B-40-38 and B-40-37 over Yount Dr  
B-40-39 over  
B-40-41  
B-40-42  
B-40-49-001  
B-40-48-002  
B-40-49-003 over 44<sup>th</sup> St

As needed for work on top or underneath the bridge or for safety, install traffic control devices as detailed on the plans for the following closures:

#### **Stage 2A**

- Close the outside half of westbound IH 94
- Close only the west lane of STH 175 northbound as needed for work on or under B-40-41, B-40-42, B-40-49-001, and B-40-49-003, following the additional system ramp closures detailed in the plans. If the west lane is closed for work the south to west system ramp shall also be closed due to the proximity of the work zone.
- Close the north to west and east to south system ramps in the Stadium Interchange as shown in the staging plans, in order to complete work on the ramps.

## **Stage 2B**

- Close the inside half of westbound IH 94
- Close the east or west lane of STH 175 NB as needed for work on or under B-40-41, B-40-42, B-40-49-001, and B-40-49-003, following the additional system and service ramp closures detailed in the plans.
  - o If the west lane is closed for work the south to west system ramp shall also be closed due to the proximity of the work zone.
  - o If the east lane is closed for work the south to east system ramp should also be closed due to the proximity of the work zone.
- Close the south to west and east to south system ramps in the Stadium Interchange, as shown in the staging plans, in order to complete work on the ramps, or due to the proximity of the work zone.

## **Stage 2C**

- Close the outside half of eastbound IH 94
- Close the east or west lane of STH 175 NB as needed for work on or under B-40-41, B-40-42, B-40-49-001, and B-40-49-003, following the additional system and service ramp closures detailed in the plans.
  - o If the west lane is closed for work the south to west system ramp should also be closed due to the proximity of the work zone.
  - o If the east lane is closed for work the south to east system ramp should also be closed due to the proximity of the work zone.
- Close the west to south system ramp in the Stadium Interchange during system ramp closure hours, as shown in the staging plans, in order to complete work on the ramp, or due to the proximity of the work zone.

## **Stage 2D**

- Close the inside half of eastbound IH 94
- Close only the west lane of STH 175 NB as needed for work on or under B-40-41, B-40-42, B-40-49-001, and B-40-49-003, following the additional system ramp closures detailed in the plans. If the west lane is closed for work the south to west system ramp should also be closed due to the proximity of the work zone.
- The west to north and north to east system ramps in the Stadium Interchange will be closed, as shown in the staging plans, in order to complete work on the ramps, or due to the proximity of the work zone.

## **Stage 3: East Segment of IH 94, 35<sup>th</sup> Street to 16<sup>th</sup> Street**

The department anticipates the schedule of major traffic shifts and roadway closures for each substage of Stage 2 shall be as follows.

For the bridges in this stage the work is mainly under the bridge over IH-94.

The bridges in this stage are as follows:

B-40-15  
B-40-33 over 32<sup>nd</sup> St  
B-40-43 on 27<sup>th</sup> St (where work is anticipated)  
B-40-57  
B-40-34  
B-40-550-18

As needed for work on top or underneath the bridge or for safety, install traffic control devices as detailed on the plans for the following closures:

## **Stage 3A**

- Close the outside half of westbound IH 94
- Close the south to west and north to west system ramps in the Marquette Interchange, as shown in the staging plans, in order to complete work on the ramps, or due to the proximity of the work zone.

## **Stage 3B**

- Close the inside half of westbound IH 94
- Maintain two lanes of traffic from the north to west and south to west ramps onto westbound IH 94 at all times.
- Close and detour IH 794 traffic.



- Service entrance ramps from 11<sup>th</sup> St, Clybourn St, Jackson St, and Lincoln Memorial Drive will be closed during nighttime work hours due to the closure of IH 794 WB.

### Stage 3C

- Close the outside half of eastbound IH 94
- Close the north to east system ramp in the Stadium Interchange will be closed, as shown in the staging plans, in order to complete work on the ramp, or due to the proximity of the work zone.

### Stage 3D

- Close the inside half of eastbound IH 94
- Close the north to east and south to east system ramps the Stadium Interchange, as shown in the staging plans, in order to complete work on the ramps, or due to the proximity of the work zone.

## Wisconsin Lane Closure System Advance Notification

Provide the following advance notification to the engineer for incorporation into the Wisconsin Lane Closure System (LCS).

**TABLE 108-1 CLOSURE TYPE AND REQUIRED MINIMUM ADVANCE NOTIFICATION**

<b>Closure type with height, weight, or width restrictions (available width, all lanes in one direction &lt; 16')</b>	<b>MINIMUM NOTIFICATION</b>
Lane and shoulder closures	7 calendar days
Full roadway closures	7 calendar days
Ramp closures	7 calendar days
Detours	7 calendar days
<b>Closure type without height, weight, or width restrictions (available width, all lanes in one direction ≥ 16')</b>	<b>MINIMUM NOTIFICATION</b>
Lane and shoulder closures	3 business days
Ramp closures	3 business days
Modifying all closure types	3 business days

Discuss LCS completion dates and provide changes in the schedule to the engineer at weekly project meetings in order to manage closures nearing their completion date.

## Clear Zone Working Restrictions

Do not store materials or equipment within the clear zone of traffic lanes which are not protected by temporary precast barrier. Remove materials from the clear zone prior to opening lane closures.

Do not perform heavy equipment work in the median at any time unless protected by concrete barrier in both directions except as allowed during night work with lane closures.

Do not perform heavy equipment work within 18 feet of the edge of the traveled way unless protected by concrete barrier or a lane closure during the allowed closure periods.

If the contractor is unsure whether an individual work operation will meet the safety requirements for working within the clear zone, review the proposed work operation with the engineer before proceeding with the work.

## Rolling Closures

Rolling closure are not allowed.

## Construction Access

Restrict work on IH-94 and IH-94 Ramps within closed shoulders or closed lanes as allowed by the plans or engineer. Provide, utilize, and maintain temporary deceleration and acceleration lanes to/from the work zones. All construction access is subject to approval of the engineer.

During the period when lane closures are allowed on IH-94, access into the work zones can be made from the closed lane, subject to the approval of the engineer. Construction traffic from the work zone entering IH-94 must run out of the closed lane. All construction traffic re-entering IH-94 must come to within 10 mph of posted speed before re-entering the live travel lane.

U-Turns at existing maintenance crossovers or temporary crossovers between IH-94 EB and WB are not allowed.

Construction operations affecting the traveling public's safety on IH-94 will not be allowed during snow and ice conditions, or any other adverse weather conditions, unless approved by the engineer.

Delivery of equipment to IH-94 requiring the use of a semi-tractor and trailer shall only occur during those hours identified as off peak for use of a lane closure.

## **5. Traffic Control Scheduling.**

Every Wednesday by 9:00 AM, submit a detailed proposed 2-week look-ahead traffic closure schedule to the engineer. Type the detailed proposed 2-week look-ahead closure schedule into an excel spreadsheet provided by the engineer. Enter information such as closure dates, duration, work causing the closure and detours to be used. Also enter information such as ongoing long-term closures, emergency contacts and general 2-month look-ahead closure information into the excel spreadsheet.

Obtain approval from the engineer for any mid-week changes to the closure schedule. Revise the 2-week look-ahead as required and obtain engineer approval.

sef-643-040 (20150319)

## **6. Lane Rental Fee Assessment.**

### **A General**

The contract designates some lane closures to perform the work. The contractor will not incur a Lane Rental Fee Assessment for closing lanes during the allowable lane closure times. The contractor will incur a Lane Rental Fee Assessment for each lane closure outside of the allowable lane closure times. If a lane is obstructed at any time due to contractor operations, it is considered a closure. The purpose of lane rental is to enforce compliance of lane restrictions and discourage unnecessary closures.

The allowable lane closure times are shown in the Traffic article.

Submit the dates of the proposed lane, ramp, and roadway restrictions to the engineer as part of the progress schedule.

Coordinate lane, ramp, and roadway closures with any concurrent operations on adjacent roadways within 3 miles of the project. If other projects are in the vicinity of this project, coordinate lane closures to run concurrent with lane closures on adjacent projects when possible. When lane closures on adjacent projects extend into the limits of this project, Lane Rental Fee Assessments will only occur if the closure facilitates work under this contract.

### **B Lane Rental Fee Assessment**

The Lane Rental Fee Assessment incurred for each lane closure, each ramp closure, and each full closure of a roadway, per direction of travel, is as follows:

- Night time- \$Lane Rental Dollar Amount per lane, per direction of travel, per hour broken into 15 minute increments
- System Ramp- \$Lane Rental Dollar Amount per lane, per direction of travel, per hour broken into 15 minute increments
- Service Ramp- \$Lane Rental Dollar Amount per lane, per direction of travel, per hour broken into 15 minute increments
- Off Peak- \$Lane Rental Dollar Amount per lane, per direction of travel, per hour broken into 15 minute increments
- On Peak- \$Lane Rental Dollar Amount per lane, per direction of travel, per hour broken into 15 minute increments

The Lane Rental Fee Assessment represents a portion of the cost of the interference and inconvenience to the road users for each closure. All lane, roadway, or ramp closure event increments 15 minutes and less will be assessed as a 15-minute increment.

The engineer, or designated representative, will be the sole authority in determining time period length for the Lane Rental Fee Assessment.

Lane Rental Fee Assessments will not be assessed for closures due to crashes, accidents or emergencies not initiated by the contractor.

The department will assess Lane Rental Fee Assessment by the dollar under the administrative item Failing to Open Road to Traffic. The total dollar amount of Lane Rental Fee Assessment will be computed by multiplying the Lane Rental Assessment Rate by the number of 15-minute increments of each lane closure event as described above.

Lane Rental Fee Assessment will be in effect from the time of the Notice to Proceed until the department issues final acceptance. If interim completion time or contract time expires before the completion of specified work in the contract, additional liquidated damages will be assessed as specified in standard spec 108.11 or as specified within this contract.

stp-108-070 (20161130)

## **7. Holiday Work Restrictions.**

Do not perform work on, nor haul materials of any kind along or across any portion of the highway carrying IH 41, IH 43, IH 794 and IH 94 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 Friday, September 4, 2020; to 6:00 AM Tuesday, September 8, 2020 for Labor Day;
- From noon Wednesday, November 25, 2020; to 6:00 AM Monday, November 30, 2020 for Thanksgiving Day;
- From noon Wednesday, December 23, 2020; to 6:00 AM Monday, December 28, 2020 for Christmas Eve and Day;
- From noon Wednesday, December 30, 2020; to 6:00 AM Monday, January 4, 2021 for New Year's Eve and Day.

### **Freeway Special Event Restrictions**

During Pride Fest, no full freeway or system ramp closures on IH 43, IH 94, and 794 in both directions until one hour after the event closes each night.

During Polish Fest, no full freeway or system ramp closures on IH 43, IH 94, and 794 in both directions until one hour after the event closes each night.

During Summerfest, no full freeway or system ramp closures on IH 43, IH 94, and 794 in both directions until one hour after the event closes each night.

During Festa Italiana, no full freeway or system ramp closures on IH 43, IH 94, and 794 in both directions until one hour after the event closes each night.

During German Fest, no full freeway or system ramp closures on IH 43, IH 94, and 794 in both directions until one hour after the event closes each night.

During Wisconsin State Fair, no full freeway or system ramp closures on IH 43, IH 94, and 794 in both directions until one hour after the event closes each night.

During Irish Fest, no full freeway or system ramp closures on IH 43, IH 94, and 794 in both directions until one hour after the event closes each night.

During Mexican Fiesta, no full freeway or system ramp closures on IH 43, IH 94, and 794 in both directions until one hour after the event closes each night.

During 2020 Ryder Cup, scheduled for September 21 – September 28, 2020, do not perform work on, nor haul materials of any kind along or across any portion of the highway carrying IH 43, IH 94 or IH 794 traffic.

On days with a Milwaukee Bucks home game at Fiserv Forum, maintain all inbound travel lanes on IH 43, IH 94, and IH 794 to Fiserv Forum starting at two hours before the game. Maintain all outbound lanes on IH 43, IH 94, and IH 794 from Fiserv Forum until three hours after the start of the game. Restrictions during other special events at Fiserv Forum will be determined on an as needed basis as determined by the engineer.

On days with a Milwaukee Brewer home game at Miller Park, maintain all inbound travel lanes on IH 43, IH 94, and IH 794 to Miller Park starting at three hours before the game. Maintain all outbound lanes on IH 43, IH 94, and IH 794 from Miller Park until four hours after the start of the game. Restriction during other special events at Miller Park will be determined on an as needed basis as determined by the engineer.

stp-107-005 (20181119)

## **8. Railroad Insurance and Coordination - Soo Line Railroad Company (CP)**

### **A. Description**

Comply with standard spec 107.17 for all work affecting Soo Line Railroad Company (CP) property and any existing tracks.

#### **A.1 Railroad Insurance Requirements**

In addition to standard spec 107.26, provide railroad protective liability insurance coverage as specified in standard spec 107.17.3.

Insurance is filed in the name of Soo Line Railroad Company d/b/a Canadian Pacific.

Notify evidence of the required coverage, and duration to Brian Osborne, Manager Public Works; Canadian Pacific Plaza, 120 South 6th Street, Suite 700, Minneapolis, MN 55402; Telephone (612) 330-4555; E-mail: [brian\\_osborne@cpr.ca](mailto:brian_osborne@cpr.ca). Also send a copy to the following: Paul Derksen, SE Region Railroad Coordinator; 141 N. W. Barstow Street, Waukesha, WI 53188; Telephone (262) 548-8770; E-mail: [paul.derksen@dot.wi.gov](mailto:paul.derksen@dot.wi.gov).

Include the following information on the insurance document:

- Project ID: 1060-11-73
- Project Location: Milwaukee, STHconsin
- Route Name: IH 94, Milwaukee County
- Crossing ID: 386 511C
- Railroad Subdivision: Watertown Sub
- Railroad Milepost: 87.83
- Work Performed: Traffic control

#### **A.2 Train Operation**

Approximately 2 passenger trains and 21 through freight trains operate daily through the construction site. Passenger trains operate at up to 79 mph. Through freight trains operate at up to 40 mph.

#### **A.3 Names and Addresses of Railroad Representatives for Consultation and Coordination**

##### **Construction Contact**

Brian Osborne, Manager Public Works; Canadian Pacific Plaza, 120 South 6<sup>th</sup> Street, Suite 700, Minneapolis, MN 55402; Telephone (612) 330-4555; E-mail [brian\\_osborne@cpr.ca](mailto:brian_osborne@cpr.ca) for consultation on railroad requirements during construction.

Amend standard spec 108.4 to include the railroad in the distribution of the initial bar chart, and monthly schedule updates. The bar chart shall specifically show work involving coordination with the railroad.

##### **Flagging Contact**

Dave LeClaire, Supervisor of Public Works; Canadian Pacific Plaza, 120 South 6<sup>th</sup> Street, Suite 700, Minneapolis, MN 55402; Telephone (612) 330-4556; E-mail [dave.leclaire@cpr.ca](mailto:dave.leclaire@cpr.ca) Reference the Crossing ID, STHconsin Milepost and Subdivision found in A.1.

\* Contact Soo Line (CP) prior to letting for flagman work hour availability.

##### **Cable Locate Contact**

In addition to contacting Diggers Hotline, contact CP Call Before You Dig line at (866) 291-0741, five working days before the locate is needed. Reference the Crossing ID, STHconsin Milepost and Subdivision found in A.1.

Soo Line (CP) will only locate railroad owned facilities located in the railroad right-of-way. The railroad does not locate any other utilities.

#### **A.4 Work by Railroad**

The railroad will perform the work described in this section, except for work described in other special provisions, and will be accomplished without cost to the contractor. **None.**

#### **A.5 Temporary Grade Crossing**

If a temporary grade crossing is desired, submit a written request to the railroad representative named in A.3 at least 40 days prior to the time needed. Approval is subject to the discretion of the railroad. The department has made no arrangements for a temporary grade crossing.

stp-107-026 (20190717)

### **9. Notice to Contractor – Milwaukee Metropolitan Sewerage District Right of Entry Permit.**

A portion of the IH 94 Highway easement and temporary limited easement overlaps an area where the Milwaukee Metropolitan Sewerage District (MMSD) has permitted equipment and operations. Contractor access within the MMSD grounds is limited to access drive from 44<sup>th</sup> Street and the fenced area.

The Contractor will need to obtain a Right of Entry permit from MMSD for access to this area. Other documents to be included with the permit forms are plans and drawings for the intended use and a Certificate of Insurance meeting MMSD requirements.

The permit form and other requirements can be obtained from MMSD by contacting either of the following.

Michael Hirsch	414-225-2096	<a href="mailto:mhirsch@mmsd.com">mhirsch@mmsd.com</a>
Beth Smith	414-225-2275	<a href="mailto:bsmith@mmsd.com">bsmith@mmsd.com</a>

The area underneath the freeway bridges is fenced with a gate secured by chain and padlock. Contractor will need to arrange an initial meeting at the gate to get its padlock on the daisy chain. LikeSTHe, when finished, a final meeting will be needed to secure the gate. The area must be kept locked when no one is present.

### **10. Hauling Restrictions.**

*Replace standard spec 107.2 with the following:*

- (1) Present to the department, five business days before proposed hauling, a proposed haul route plan detailing haul routes that are not part of the state trunk highway system. Include the months, days of the week, time of day, number of trucks, types of trucks and maximum loads of trucks anticipated to accomplish the project work in the haul route submittal.
- (2) The department will review the submittal and either approve or provide a letter with comments and proposed revisions to the contractor within five business days of its receipt. If approved, the department will subsequently survey the existing condition of that haul route to establish a baseline for assessing damage that the contractor's hauling operations might cause.
- (3) At all times, conduct operations in a manner that will cause a minimum of disruption to traffic on existing roadways.

### **11. Environmental Protection**

*Add the following to standard spec 107.18 as paragraph eight:*

- (8) Construction materials and debris, including fuels, oil, and other liquid substances (including epoxy paint), will not be stored in the construction area in a manner that would allow them to enter a wetland, waterbody or subsurface soil as a result of spillage, natural runoff, or flooding. If a spill of any hazardous material should occur on the worksite, it is the responsibility of the project management to remove such material, to minimize any contamination resulting from this spill, and to immediately notify the State Duty Officer at 1-800-943-0003.

## **12. Utilities.**

This contract comes under the provision of Administrative Rule Trans 220.

stp-107-065 (20080501)

Utility adjustments are not anticipated for this construction project. 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 statutes. Use caution to ensure the integrity of underground facilities and maintain code clearances from overhead facilities at all times.

Contact the local governing road authority to find out if there are any locally owned facilities within the project limits.

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

The following utilities have facilities within the construction limits, however, no adjustments are anticipated:

### **AT&T STHconsin - Communication Line**

The field contact is Jay Bulanek at (262) 896-7669 or [jb5175@att.com](mailto:jb5175@att.com).

### **ATC Management, Inc. – Electricity Transmission**

The field contact is Mike Olsen at (920) 338-6582 or [molsen@atcllc.com](mailto:molsen@atcllc.com).

### **Charter Communications - Communication Line**

The field contact is Pete Kruzela at (414) 908-1339 or [STH.engineering@charter.com](mailto:STH.engineering@charter.com).

### **City of Milwaukee – Electricity**

The field contact is Samir Amin at (414) 286-3301 or [samin@milwaukee.gov](mailto:samin@milwaukee.gov).

### **City of Milwaukee - Road Facility**

The field contact is Samir Amin at (414) 286-3301 or [samin@milwaukee.gov](mailto:samin@milwaukee.gov).

### **City of Milwaukee - Sewer**

The field contact is Samir Amin at (414) 286-3301 or [samin@milwaukee.gov](mailto:samin@milwaukee.gov).

### **City of Milwaukee - Water**

The field contact is Samir Amin at (414) 286-3301 or [samin@milwaukee.gov](mailto:samin@milwaukee.gov).

### **Level 3 Communications LLC - Communication Line**

The field contact is Network Relocations at [relo@level3.com](mailto:relo@level3.com).

### **Midwest Fiber Networks LLC - Communication Line**

The field contact is Richard Trgovec at (414) 459-3554 or [rtrgovec@midwestfibernetworks.com](mailto:rtrgovec@midwestfibernetworks.com).

### **Milwaukee Metropolitan Sewerage District - Sewer**

The field contact is Micki Klappa-Sullivan at (414) 225-2178 or [MKlappaSullivan@mmsd.com](mailto:MKlappaSullivan@mmsd.com).

### **Verizon Business - Communication Line**

The field contact is OSP National Support/Investigations at (262) 574-5422 or [Investigations@Verizon.com](mailto:Investigations@Verizon.com).

### **We Energies - Electricity**

The field contact is Nicole Smullen at (414) 221-5617 or [Nicole.Smullen@wecenergygroup.com](mailto:Nicole.Smullen@wecenergygroup.com).

### **We Energies - Gas/Petroleum**

The field contact is Nicole Smullen at (414) 221-5617 or [Nicole.Smullen@wecenergygroup.com](mailto:Nicole.Smullen@wecenergygroup.com).

The following utilities have no facilities within the vicinity of the project:

### **AT&T Legacy - Communication Line**

AT&T Mobility - Communication Line  
STHDOT ATR Pull Boxes - Electricity  
City of Wauwatosa - Road Facility  
City of Wauwatosa - Sewer  
City of Wauwatosa - Street Lighting  
City of West Allis - Communication Line  
City of West Allis - Road Facility  
City of West Allis - Sewer  
City of West Allis - Street Lighting  
City of West Allis - Water  
Marquette University - Communication Line  
Milwaukee County Department of Public Works - Road Facility  
Milwaukee County Parks Department - Electricity  
PaeTec Communications, LLC - Communication Line  
Rogers Telecom - Communication Line  
TDS Metrocom LLC - Communication Line  
Village of West Milwaukee - Water  
Wauwatosa Water Utility - Water  
We Energies - Steam  
West Allis West Milwaukee School District ET AL - Communication Line  
West Allis West Milwaukee School District ET AL – Itsnet  
STHconsin Department of Transportation - Communication Line  
STHconsin Department of Transportation - Street Lighting  
STHconsin Department of Transportation - STHconsin Signal  
Windstream KDL, LLC - Communication Line  
Windstream NTI, LLC - Communication Line

### 13. Other Contracts

The department plans to contract for the mill and overlay and high friction surface treatment on the adjacent project to the east on IH 94 and north on IH 43, which has work that will be in progress concurrently and whose traffic control overlaps with the work under this contract.

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

The following projects may be under construction concurrently with the work under this contract. Coordinate activities, detours, work zone traffic control, roadway and lane closures, and other work items as required with other contracts.

Remove contact or provide construction PM

#### Project 1228-09-74

East West Freeway, Marquette I/C, IH 94

WISDOT Contact: Evan Limberatos; (262) 548-8797; [Evan.Limberatos@dot.wi.gov](mailto:Evan.Limberatos@dot.wi.gov)

#### Project 1300-09-72

Lake Freeway, Milwaukee River to Lincoln Memorial Drive, IH 794

WISDOT Contact: Chris Zacharias; (414) 750-4955; [Christopher.Zacharias@dot.wi.gov](mailto:Christopher.Zacharias@dot.wi.gov)

**Project 1060-34-78**

ZOO IC, Detention Pond at North Avenue Interchange, Non Hwy

WISDOT Contact: Chris Zacharias; (414) 750-4955; [Christopher.Zacharias@dot.wi.gov](mailto:Christopher.Zacharias@dot.wi.gov)

**Project 1060-34-76**

ZOO IC, North Leg Prep Work, Swan Blvd to North Ave, USH 45

WISDOT Contact: Chris Zacharias; (414) 750-4955; [Christopher.Zacharias@dot.wi.gov](mailto:Christopher.Zacharias@dot.wi.gov)

**Project 1060-33-84**

ZOO IC, USH 45, Swan Blvd to Burleigh Street, USH 45

WISDOT Contact: Chris Zacharias; (414) 750-4955; [Christopher.Zacharias@dot.wi.gov](mailto:Christopher.Zacharias@dot.wi.gov)

**14. Notice to Contractor, Verification of Asbestos Inspection, No Asbestos Found.**

John Roelke, License Number 119523, inspected Structures B-40-037, B-40-038, B-40-081, B-40-082, B-40-083, B-40-084, B-40-085, and B-40-086 for asbestos on April 30, 2019, Structures B-40-550-003, B-40-033, and B-40-034 for asbestos on July 3, 2019, and Structures B-40-015, B-40-039, B-40-042, B-40-043, B-40-046, B-40-49-001, B-40-49-002, and B-40-49-003 for asbestos on August 6, 2019. No regulated Asbestos Containing Material (RACM) was found on these structures.

Jennifer Reed, License Number 155710, inspected Structure B-40-57 for asbestos on July 9, 2015. No regulated Asbestos Containing Material (RACM) was found on this structure.

Copies of the inspection reports are available from: Scott Anderson - 262-548-6894.

stp-107-127 (20120615)

**15. Available Documents.**

The department will make its information available to bidding contractors. The list of documents that are available for contractors' information includes:

- Design Study Report
- Environmental Document
- As-Built Drawings
- Traffic Management Plan

These documents are available from Scott Anderson at 141 NW Barstow Street, Waukesha, WI 53187 (262) 548-6894.

Reproduction costs will be applied to all copies requested.

sef-102-005 (20170310)

**16. Contractor Notification.**

*Replace standard spec 104.2.2.2(2) with the following:*

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

*Replace standard specs 104.3.2 and 104.3.3 with the following:*

**104.3.2 (Vacant)**

**104.3.3 Contractor Initial Written Notice**

- (1) If required by 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:
1. A written description of the nature of the issue.
  2. The time and date of discovering the problem or issue.
  3. If appropriate, the location of the issue.



- (2) Provide the additional information specified in 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.

sef-104-005 (20141211)

## **17. Contractor Document Submittals.**

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

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

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

Submit electronic copies in PDF format via email to accounts the engineer determines. If possible, create PDFs from original documents in their native format (e.g. Word, Excel, AutoCAD, etc.). Scan other documents to PDF format with a minimum resolution of 600 dpi.

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

sef-105-010 (20150619)

## **18. Construction Over or Adjacent to Navigable Waters.**

The **Menomonee River** is classified as a state navigable waterway under standard spec 107.19.

stp-107-060 (20171130)

## **19. Nighttime Work Lighting-Stationary.**

### **A Description**

This special provision describes furnishing 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 before 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.

stp-643-010 (20100709)

## **20. Abatement of Asbestos Containing Material B-40-47, Item 203.0210.S.**

### **A Description**

This special provision describes abating asbestos containing material on structures.

### **B (Vacant)**

### **C Construction**

John Roelke, License Number 119523, inspected Structure B-40-047 for asbestos on April 30, 2019. Regulated Asbestos Containing Material (RACM) was found on this structure in the following locations and quantities: The caulk located in the abutment joints and in the parapet expansion joints tested positive for asbestos greater than 1% (10%) and therefore is regulated ACM. It is non-friable, and the total quantity is 6.5 sf.

The RACM on this structure must be abated by a licensed abatement contractor. A copy of the inspection report is available from Scott Anderson - 262-548-6894. In accordance with 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 10 working days before beginning any construction or demolition. Pay all associated fees. Provide a copy of the completed 4500-113 form and the abatement report to Scott Anderson - 262-548-6894 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 STHDNR form 4500-113:

- Site Name: Structure B-40-047, IH 94 over N General Mitchell Blvd.
- Site Address: 0.5M W JCT USH 41 TO N Over 0.3M S JCT USH 18
- Ownership Information: STHDOT Transportation Southeast Region, 141 NW Barstow Street, Suite 218, PO Box 798, Waukesha, WI 53187-0798
- Contact: Steven Kuhl
- Phone: (414) 531-6932
- Age: 60 years. This structure was constructed in 1959.
- Area: 7289 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 as specified in 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 according to the contract and accepted, as a single complete lump sum 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
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203.0210.S	Abatement of Asbestos Containing Material B-40-47	LS
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Payment is full compensation for submitting necessary forms; removing all asbestos; and for properly disposing of all waste materials.

stp-203-005 (20120615)

## **21. Concrete Maturity Testing.**

#### **A Description**

This special provision requires using concrete maturity testing to determine strength for project control of concrete pavement, falsework removal, and structural concrete under the designated standard specs as follows:

Duration of the curing period.....	415.3.12
Duration of the cold weather protection period .....	415.3.13
Opening to service.....	415.3.15
Removing falsework.....	502.3.4.2
Duration of the required curing period .....	502.3.8
Duration of the cold weather protection period .....	502.3.9
Opening to service.....	502.3.10.1

The requirement for determining strength by the concrete maturity testing method supersedes all provisions for strength determination by other methods or provisions based on equivalent days within those designated subsections. The concrete maturity testing requirement also applies to all other provisions referencing strength determination under these designated subsections.

#### **B Materials**

Provide a maturity testing system that uses data-encrypted sensor devices permanently embedded in the field-placed concrete. Data-encrypted sensors have a chip that records both temperature and time information that can be downloaded to a reading device not permanently attached to those sensors.

Provide the department with a maturity reading device for each maturity testing system used on the project. Devices provided for the department use will become department property under the contract.

**C Construction**

Perform concrete maturity testing conforming to standard specification 502.3.10.1.3.3. Develop a strength/maturity relationship for each concrete mix design used under the contract. Base that relationship on strength results of cylinders from pavement, appurtenant construction, ancillary concrete, or structural masonry units incorporated into the work and using those same mixes.

**D (Vacant)**

**E Payment**

No additional payment will be made by the department for maturity testing.

sef-502-005 (20170310)

**22. Removing Bearings B-40-46, Item 506.7050.S.01; B-40-47, Item 506.7050.S.02 .**

**A Description**

This special provision describes raising the girders and removing the existing bearings, as the plans show.

**B (Vacant)**

**C Construction**

Raise the structure's girders and remove the existing bearings as the plans show

Obtain prior approval from the engineer for the method of jacking the girders and of supporting them as required.

**D Measurement**

The department will measure Removing Bearings by the unit for each bearing removed, 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
506.7050.S.01	Removing Bearings B-40-46	EACH
506.7050.S.02	Removing Bearings B-40-47	EACH

Payment is full compensation for raising the bridge girders; and for removing the old bearings.

Cost of furnishing and installing the bearings will be paid for under separate bid items.

stp-506-035 (20130615)

**23. Epoxy Crack Sealing, Item 509.9020.S.**

**A Description**

This special provision describes sealing vertical cracks in abutments as the plan details show.

**B Materials**

Furnish a penetrating epoxy sealant manufactured by Sika, Adhesive Engineering, Technical Sealants, Dayton Superior, or equal. Before using, obtain the engineer's approval for the epoxy system which is proposed to seal the cracks.

**C Construction**

Before sealing, clean the cracks by chipping and by using high-pressure air.

After all of the cleaning is completed, inject epoxy sealant into the cracks to be sealed. Seal the cracks using the penetrating epoxy sealant as recommended by the sealant manufacturer.

**D Measurement**

The department will measure Epoxy Crack Sealing in length by the linear foot of crack, acceptably sealed.

## E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
509.9020.S	Epoxy Crack Sealing	LF

Payment is full compensation for cleaning the cracks; and for furnishing and placing the epoxy sealant.

stp-509-020 (20100709)

### 24. Traffic Control.

Supplement standard spec 643.3.1 with the following:

Provide the Milwaukee County Sheriff's Department, the Wisconsin State Patrol, City of Milwaukee Police Department and the project engineer a current telephone number with which the contractor or his representative can be contacted during non-working hours in the event a safety hazard develops.

Do not park or store equipment, contractor's and personal vehicles or construction materials within the clear zone or on any roadway carrying traffic during working and non-working hours except at locations and periods of time approved by the engineer.

Do not permit construction or personnel equipment or vehicles to directly cross the live traffic lanes of IH 41, IH 43, IH 94 and IH 794. Yield to all through traffic at all locations. Equip all vehicles or equipment operating in the live traffic lanes with a hazard identification beam (flashing yellow signal light) that is visible from 360 degrees. Operate the flashing yellow beam only when merging or exiting live traffic lanes or when parked or operating on shoulders, except when parked behind barrier wall. Do not park personal vehicles within the access control limits of the freeway. Do not cross live traffic lanes of IH 43, IH 94 and IH 794 with equipment or vehicles.

Obtain prior approval from the engineer for the locations of egress or ingress for construction vehicles to prosecute the work.

Do not disturb, remove or obliterate any traffic control signs, advisory signs, sand barrel array, shoulder delineators or beam guard in place along the traveled roadways without the approval of the engineer.

Replace standard spec 643.3.1.(7) with the following:

Provide equipment, forces, and materials to promptly restore any traffic control devices or pavement markings damaged or disturbed within 2 hours of being contacted.

SER-643-001 (20170808)

### 25. Covering Signs.

*Replace standard spec 643.2.3.3(2) with the following:*

- (2) Ensure that covers are flat black, blank, and opaque.

*Add the following to standard spec 643.3.4.1 as paragraph four:*

- (4) If multiple messages on a single sign are required to be covered, minimize the number of holes created by covering the sign with a single rectangular shaped covering. Multiple coverings on a single sign is only permissible where necessary to avoid covering necessary content or as directed by the engineer. Submit sign covering plans to the engineer for single signs requiring multiple coverings 3 days before performing work. Obtain engineer approval before covering signs. Remove sign coverings before placing fixed messages signs unless otherSTHe directed by the engineer.

sef-643-005 (20180104)

### 26. Traffic Control Interim Lane Closure, Item 643.4100.S

#### A Description

This special provision describes closing a freeway/expressway traffic lane.

#### B (Vacant)

#### C Construction

Install and reposition traffic control devices as required to close a traffic lane. Remove and return the devices to their previous configuration when the closure is no longer required.

## D Measurement

The department will measure Traffic Control Interim Lane Closure as each individual reposition/return cycle acceptably completed. The department will not measure additional moves or configuration changes as might be required solely to accommodate the contractor's operations.

The department will measure the closures by traffic lane and roadway. The department will not measure multiple closures in the same traffic lane on a project.

## E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
643.4100.S	Traffic Control Interim Lane Closure	EACH

Payment is full compensation for closing and re-opening the affected traffic lane.

stp-643-030 (20170615)

## 27. Embedded Galvanic Anodes, Item SPV.0060.01.

### A Description

This special provision describes furnishing and installing embedded galvanic anodes in concrete.

### B Materials

Furnish pre-manufactured galvanic anodes designed for cathodic protection when embedded in concrete and tied to steel reinforcing. The core of the anode shall consist of a minimum of 1.3 ounces of electrolytic zinc in compliance with ASTM B418 Type II, cast around a pair of steel tie wires and encased in a cementitious shell with a minimum pH of 14. The anodes shall have one side that is less than 1-1/2 inches in height.

Submit the product information to the engineer for approval. Supply a certification of compliance to the engineer a minimum of two weeks before starting work. Deliver, store, and handle all materials according to the manufacturer's instructions.

### C Construction

#### C.1 Concrete Repair

Repair the concrete and prepare the exposed reinforcing steel conforming to standard spec 509.

#### C.2 Galvanic Anode Installation

**C.2.1** Install embedded galvanic anodes conforming to the manufacturer's recommendations.

**C.2.2** Attach galvanic anodes to existing reinforcement along the perimeter of the repair at spacing as specified on the plans. Space anodes no further than 24 inches apart.

**C.2.3** Provide 3/4-inch clearance between anodes and substrate.

**C.2.4** Secure the galvanic anodes as close as possible to the patch edge using the anode tie wires. Tighten the tie wires to allow no free movement.

If the anode is to be tied onto a single bar, or if less than 1-1/2 inch of concrete cover is expected, place anode beneath the uncoated bar and secure to reinforcing steel.

If 1-1/2 inch concrete cover will exist over the anode, the anode may be placed at the intersection between two bars and secured to each bar.

#### C.3 Electrical Continuity

Confirm electrical connection between anode tie wire and uncoated reinforcing steel with a multi-meter. The maximum DC resistance shall be 1 Ohm. Confirm electrical continuity of the exposed uncoated reinforcing steel within the repair area. Steel reinforcement shall be considered continuous when the DC resistance is 1 Ohm or less. If necessary, establish the electrical continuity with uncoated steel tie wire.

#### C.4 Inspection

Obtain Engineer's verification of proper installation of the galvanic anodes prior to placement of the concrete.

## D Measurement

The department will measure Embedded Galvanic Anodes as each individual anode acceptably installed.

#### **E Payment**

The department will pay for the measured quantities at the contract unit price under the following bid item:

<b>ITEM NUMBER</b>	<b>DESCRIPTION</b>	<b>UNIT</b>
SPV.0060.01	Embedded Galvanic Anodes	EA

Payment for Embedded Galvanic Anodes is full compensation for furnishing and for properly installing anodes.

Concrete repair work, and concrete for that work, will be paid for separately.

### **28. Precast Concrete Bearing Block, Item SPV.0060.02.**

#### **A Description**

This special provision describes manufacturing, transporting, and erecting precast concrete bearing blocks according to the plans, the pertinent sections of the standard specifications, and as hereinafter provided.

#### **B Materials**

##### **B.1 Concrete**

Use concrete in the precast bearing blocks that meets the following requirements: grade D concrete; minimum compressive strength of 5000 psi at 28 days; and minimum release strength of 4000 psi.

##### **B.2 Reinforcing**

Position and space the reinforcement used in the bearing block as given on the plan. Use reinforcement that conforms to the requirements of standard spec 503.2.3.

All external or exposed steel shall be epoxy-coated.

##### **B.3 Grout**

Use an approved non-shrink, non-chloride grout mixed and placed according to the grout manufacturer's instructions and specifications.

##### **B.4 Plant Certification**

Furnish precast concrete blocks that have been manufactured in a plant meeting the requirements of standard spec 503.2.4.

##### **B.5 Steel Plates**

Furnish steel plates, as shown on the plans, that conform to the requirements of standard spec 506.2.2.

##### **B.6 Adhesive Anchors**

Furnish adhesive anchors, as shown on the plans, that conform to the requirements of standard spec 502.2.12.

#### **C Construction**

##### **C.1 Handling and Storing**

Handle the precast bearing blocks, from the time of fabrication until they are in place in the structure, according to standard spec 503 and as hereinafter specified.

Bearing blocks having cracks visibly apparent will be rejected.

#### **D Measurement**

The department will measure Precast Concrete Bearing Block as each individual block, acceptably completed.

#### **E Payment**

The department will pay for the measured quantities at the contract unit price under the following bid item:

<b>ITEM NUMBER</b>	<b>DESCRIPTION</b>	<b>UNIT</b>
SPV.0060.02	Precast Concrete Bearing Block	EA

Payment is full compensation for manufacturing, transporting and erecting the bearing blocks; installing adhesive anchors; and welding.

**29. Cleaning and Painting Bearings, Item SPV.0060.03.**

**A Description**

This special provision describes cleaning and painting the existing steel bearings on structures conforming to standard spec 517 and as directed by the engineer.

**B Materials**

Furnish a complete epoxy coating system from the department's approved product list. Use the same coating system for all repairs due to handling, shipping, and erecting; and for all other uncoated areas. The color of epoxy shall be Federal #26293 (light gray) and the urethane coating material shall match the color number shown on the plans conforming to Federal Standard Number 595B, as printed in 1989. Supply the engineer with the product data sheets before any coating is applied. The product data sheets shall indicate the mixing and thinning directions, the minimum drying time for shop or field applied coats, and the recommended procedures for coating galvanized bolts, nuts, and washers..

**C Construction**

**C.1 Surface Preparation**

Clean areas of loose paint and rust by wire brushing, grinding, or other mechanical means. Sound paint does not need to be removed.

After clean up and storage of waste material, blast cleaning is allowed for only those areas where paint has been removed. Shield adjacent painted areas during blast cleaning operations. The blasting sand does not have to be collected.

Furnish containment methods as required to contain and collect waste material resulting from the preparation of painted steel surfaces for painting. All clean up activities should minimize dust. Store waste materials in hazardous waste containers provided by the department..

**C.2 Coating Application**

Apply paint in a neat, workmanlike manner, and conforming to the manufacturer's instructions and recommendations. Paint application shall be brushed on.

**D Measurement**

The department will measure Cleaning and Painting Bearings as each individual bearing acceptably completed.

**E Payment**

The department will pay for the measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.03	Cleaning and Painting Bearings	EA

Payment for Cleaning and Painting Bearings is full compensation for preparing and cleaning the designated bearings; furnishing and applying the paint; cleaning up; and containing and collecting all waste materials.

**30. Bearing Repair, Item SPV.0060.04.**

**A Description**

This special provision describes shimming the existing pier bearings according to the plans, the pertinent sections of the standard specifications, and as hereinafter provided.

Provide and install steel shim plates to regain connectivity between the existing bearing assemblies. Tack weld multiple shims together as directed by the Engineer. Repair existing welds that are broken as directed by the Engineer.

**B (Vacant)**

**C (Vacant)**

**D Measurement**



The department will measure Bearing Repair as each individual bearing acceptably completed.

**E Payment**

The department will pay for the measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.04	Bearing Repair	EA

Payment for Bearing Repair is full compensation for providing and placing shim plates, tack welding multiple shim plates together, and replacing existing broken welds.

**31. Traffic Control Close-Open Freeway Entrance Ramp, Item SPV. 0060.05.**

**A Description**

This special provision describes closing and re-opening a freeway entrance ramp and associated auxiliary lane.

**B (Vacant)**

**C Construction**

Install or reposition traffic control devices required for closing a freeway entrance ramp and adjacent auxiliary lanes. Remove or return traffic control devices to their previous configuration when the closure is no longer required.

**D Measurement**

The department will measure Traffic Control Close-Open Freeway Entrance Ramp by each individual ramp closure 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. 0060.05	Traffic Control Close-Open Freeway Entrance Ramp	EACH

Payment is full compensation for closing and re-opening the freeway entrance ramp. Traffic Control devices will be paid separately.

sef-643-001 (20190828)

**32. Traffic Control Close-Open Freeway to Freeway System Ramp, Item SPV. 0060.06.**

**A Description**

This special provision describes closing and re-opening a freeway to freeway system ramp.

**B (Vacant)**

**C Construction**

Install or reposition traffic control devices required for closing a freeway system ramp and adjacent auxiliary lanes. Remove or return traffic control devices to their previous configuration when the closure is no longer required.

**D Measurement**

The department will measure Traffic Control Close- Open Freeway to Freeway System Ramp by each individual closure 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. 0060.06	Traffic Control Close- Open Freeway to Freeway System Ramp	EACH

Payment is full compensation for closing, and re-opening a freeway to freeway system ramp. Traffic Control devices will be paid separately.

sef-643-002 (20180627)

**33. Traffic Control Full Freeway Closure, Item SPV. 0060.07.**

**A Description**

This special provision describes closing and re-opening a freeway or expressway.

**B (Vacant)**

**C Construction**

Install or reposition traffic control devices required for a full freeway closure. Remove or return traffic control devices to their previous configuration when the full closure is no longer required.

**D Measurement**

The department will measure Traffic Control Full Freeway Closure by each individual freeway closure that is set up and later removed in each traffic direction 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. 0060.07	Traffic Control Full Freeway Closure	EACH

Payment is full compensation for closing, and re-opening the freeway. Traffic Control devices will be paid separately.

sef-643-003 (20180627)

**34. Traffic Control Local Road Lane Closures, Item SPV.0060.08.**

**A Description**

This special provision describes closing and reopening a local road lane or lanes, including full closure conforming to standard spec 643, the plans, and as directed by the engineer.

**B (Vacant)**

**C Construction**

Install or reposition traffic control devices required for closing a local road or lanes of a local road. Remove or return traffic control devices to their previous configuration when the closure is no longer required.

**D Measurement**

The department will measure Traffic Control Local Road Lane Closures by each individual closure acceptably completed. The department will not measure the closure of a local road not deemed necessary by the engineer.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.08	Traffic Control Local Road Lane Closures	EACH

Payment is full compensation for closing and re-opening a local road lane or lanes.

sef-643-035 (20171004)

**35. Fiber Wrap Reinforcing Non-Structural, Item SPV.0165.01.**

**A Description**

This special provision describes providing non-structural protection using externally bonded, high-strength, fiber reinforced polymer (FRP) composite/epoxy resin systems field-applied per the details shown on the plans.

**B Materials**

Furnish a glass or carbon composite fabric that is a continuous unidirectional filament woven fabric with a primary fiber of electrical (E) glass or carbon, respectively.

Use a two-component, solvent-free with 0% Volatile Organic Compound (VOC) epoxy that is supplied by the manufacturer. Polyester resin shall not be allowed as a substitute for epoxy resin. Deliver epoxy materials in factory sealed containers with the manufacturer's labels intact and legible with verification of the date of manufacture and shelf life.

The protective top coating shall be concrete gray in color and match the color of the adjacent unwrapped concrete. Protective top coating shall be vapor permeable and UV resistant.

The use of more than one FRP system in an application is not permitted.

Store products in a protected area at a temperature between 40 deg. F and 100°F with no moisture contact, no UV exposure, protected from dirt, chemicals, and physical damage, and according to the manufacturer's requirements. Do not use components exceeding their shelf lives.

Provide the following to the engineer:

- The manufacturer's data sheet indicating physical, mechanical and chemical characteristics of all materials used in the FRP system including the primer, putty, resin, saturant, fibers, and top coating.
- The manufacturer's Material Safety Data Sheets (MSDS) for all materials used.
- The manufacturer's instructions for installation and repair, including information on lap details if required.
- The manufacturer's storage and handling requirements of all materials.

Supplied composite fabric and epoxy resin products must have a minimum of ten installations. Furnish proof of successful installations including date of construction and owner references. Furnish certified test reports including 1000 hour tests for 140° Fahrenheit, water, and salt water.

## **C Construction**

### **C.1 Certified Applicators**

Installers shall have a minimum of three years of experience performing similar FRP composite strengthening, and be trained and certified by the manufacturer of the supplied FRP composite/epoxy resin system being used. Submit a list of completed surface bonded FRP composite strengthening projects completed with the manufacturer's FRP composite system in the past three years. The list shall include a minimum of 10 projects with the proposed FRP system, the dates when work was performed, general description of work, quantity of work and owner references. Provide written verification from the FRP composite manufacturer that the applicator has received the required training and is a certified installer by the FRP manufacturer.

### **C.2 Surface Preparation**

Remove spalled and loose concrete. Treat any areas of active corrosion of the reinforcement and patch the concrete surface so as to restore it to its original dimensions. When patching the concrete substrate, remove defective concrete down to sound concrete; the extents of the area to be removed and patched shall be 1/2-inch beyond the boundary of the distress on all sides. If there is a loss of bond between the reinforcing steel and the concrete, remove the surrounding concrete to a depth equal to the greater of 3/4-inch or the maximum aggregate size plus 1/4-inch. Allow patches to cure a minimum of 10 days before FRP application or until the surface moisture is less than 4%.

Epoxy inject cracks in the concrete larger than 0.25 mm in width at least 24 hours prior to FRP installation. Seal cracks smaller than 0.25 mm in width in aggressive environments at the direction of the engineer. This work to be paid for under a separate bid item per the plans.

Grind uneven surfaces or protrusions until smooth. Any corners or edges shall be rounded over to a minimum radius of 1/2-inch; this requirement also applies to beveled edges which must be chamfered to eliminate sharp spots.

The concrete surface shall be clean, and free of any material that could interfere with bonding, such as dirt, grease, wax, etc. The surface must also be free of moisture with a maximum moisture content of 4%. Immediately prior to bonding, all contact surfaces shall receive a final cleaning by hand or oil-free compressed air to remove any residual dust, powder residue or laitance.

### **C.3 Installation**

Place FRP only under the following conditions or per manufacturer's recommendation:

- Ambient temperature and the temperature of the epoxy resin components shall be between 55 and 90 degrees F during the entire application process.
- Relative humidity less than 85 percent.
- Surface temperature more than 5 degrees F above the dew point.
- Moisture level of all contact surfaces, included patched areas, less than 4% unless the resin has been specifically formulated for wet applications.

Unless directed otherwise by the engineer, install the FRP after all dead loads have been applied to the bridge. Do not install FRP while the component being repaired is subjected to live loads.

Apply, per manufacturer's instructions, a system-compatible putty as required to fill uneven surfaces or recesses.

Apply the primer coat uniformly to the substrate using a roller or trowel. Allow primer to become tacky, or per manufacturer's instructions before applying fiber wrap. Primed surface shall be protected from all contaminants (i.e., dust, moisture, etc) prior to the application of the fiber wrap.

Mix the components of the epoxy resin with a mechanical mixer and apply the epoxy resin uniformly to the fiber at a rate that ensures complete saturation of the fabric. Apply saturating resin uniformly to the prepared substrate. Begin resin application within one hour after the batch has been mixed. Use all resin within the pot life as specified by the manufacturer.

Apply the fabric per manufacturer's recommendation. Handle fiber wraps in a manner to maintain fiber straightness and prevent fiber damage. Any kinks, folds, or severe waviness will not be accepted. Use rollers or hand pressure to remove any air trapped between the fabric and the concrete, or between fabric plies. Rolling must be parallel to the direction of the fibers to avoid fiber misalignment or damage. Do not use metal serrated rollers because they can damage the FRP fabric.

Stagger the joints between plies so that a continuous sheet in one ply will span the joints of the sheets in the ply below. If multiple plies cannot all be placed in one day, defer to the manufacturer to determine the extent of the cure and surface preparation required for the previously placed layers required before proceeding. If required, laps shall be per manufacturer's instructions, with a minimum edge lap of 6 inches and a minimum end lap of 12 inches. Laps should be staggered between plies.

Cover the final layer of fabric with a coat of epoxy that produces a uniform finished surface per manufacturer's instructions.

Cure per manufacturer's instructions. The FRP system shall be protected from weather, large temperature variations, moisture, sand, dust, and other foreign particles during curing. Do not allow the system to be subjected to live loads until it is completely cured. Defer to manufacturer's instructions regarding the degree of cure which must be achieved before additional dead loads can be applied to the wrapped member.

An additional protective coating is required to protect the fibers from the elements, specifically UV radiation, and to give the final aesthetic effect. Install protective coating per manufacturer's instructions after the field inspection described in section C.4.2 has been conducted. To prepare the FRP surface to receive the coating, clean and roughen the exterior surfaces of the composite wrap using a light abrasive after the final epoxy coat is completely polymerized. The abrasive shall be of the appropriate hardness to roughen the surface without damaging the fibers. Remove all dust, dirt, and other bond inhibiting materials and dry all cleaned and roughened surfaces.

## **C.4 Testing and Acceptance**

### **C.4.1 Records and Sampling**

The contractor shall record the following information for each installation:

- Date, time, and specific location of installation.
- Surface preparation methods.
- Widths and lengths of cracks not injected with epoxy.
- Material information including product used, fiber and resin lot/batch numbers, mixture ratios, mixing times, etc.
- Ambient temperature, relative humidity, and general weather observations at the beginning and end of each installation.
- Concrete surface temperature, concrete moisture content, and surface cleanliness.

- Number of FRP layers used and fiber orientation of each layer.
- Square footage of fabric and volume of epoxy used each day.

#### **C.4.2 Field Testing**

In the presence of the engineer, the contractor will conduct a visual and acoustic sounding inspection to test for defects such as voids, delaminations, external cracks, chips, cuts, loose fibers, external abrasions, blemishes, foreign inclusions, depressible raised areas, or fabric wrinkles. Conduct this inspection prior to placement of the protective coating, but after FRP has fully cured.

In the presences of the engineer, the contractor will conduct a visual inspection of the protective coating for damage including but not limited to cracking, crazing, blisters, peeling, or external abrasions. Conduct this inspection after placement and cure of protective coating.

If any defects are found, they must be repaired as detailed in C.4.3 or removed and replaced.

#### **C.4.3 Required Remediation**

Inject or back fill any small voids or bubbles (1-1/2" diameter or less) with epoxy. If five or more such voids are found in an area smaller than 10 square feet, submit a proposed remediation procedure subject to the acceptance of the engineer.

Voids or delaminated areas greater than 3 inches in diameter or an equivalent rectangular area shall be reported to the engineer. Proposed remediation procedure(s) for addressing these areas are subject to the acceptance of the engineer.

#### **D Measurement**

The department will measure Fiber Wrap Reinforcing Non-Structural by the square foot acceptably completed.

#### **E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

<b>ITEM NUMBER</b>	<b>DESCRIPTION</b>	<b>UNIT</b>
SPV.0165.01	Fiber Wrap Reinforcing Non-Structural	SF

Payment for Fiber Wrap Reinforcing Non-Structural is full compensation for preparing required submittals, cleaning and preparing the surfaces of elements to be strengthened, furnishing, transporting, handling, and installing the fiber fabric, finish coat of epoxy, the final protective coating system, field testing, and required remediation. No extra measurement or payment will be made for overlap areas.

### **36. Concrete Surface Removal, Item SPV.0165.02.**

#### **A Description**

This special provision describes removing overhead concrete that is visibly delaminated or deteriorated on structures as shown on the plans or as directed by the engineer and applying a migrating corrosion inhibitor to existing and new areas of exposed steel reinforcing and spalled concrete. This work shall be according to the pertinent parts of standard spec 517 and the details as shown in the plans.

#### **B Materials**

Furnish a migrating corrosion inhibitor for vertical and overhead applications that is according to the pertinent requirements of standard spec 517, and with the following typical physical properties:

- Color appearance: clear yellow viscous liquid,
- pH: 9.0 – 10.9 (neat),
- Density: 8.6 – 8.8 lb./gal. (1.03 – 1.05 kg/liter),
- Odor: slight ammonia smell.
- Non-volatile content: 20 – 27%.

Migrating corrosion inhibitor provided in this section shall conform to the requirements for each type and class of concrete required, with the following typical physical properties and requirements:

- Organic liquid.
- Water-based.
- Non-flammable.
- Non-vapor barrier.
- Non-toxic, oral LD 50 2000 g/kg maximum, or lower.
- Protects both anodic and cathodic areas.
- Does not contain calcium nitrate.
- Non-polluting after flushing or dilution.
- Non-harmful to plant life after flushing or dilution.
- Approved for potable water applications by NSF Standard 61.
- Certified for potable water applications by Underwriters laboratories.
- Not carcinogenic under occupational Safety and Health Agency, NTP, or IARC.
- Seven-year minimum usage experience as a migrating corrosion inhibitor.
- Confirmed effective by ASTM G – 109.
- Proven effective as reported by the Strategic Highway Research Program funded by the United States of America, Department of Transportation (DOT), federal government and state DOT's.

## **C Construction**

### **C.1 Preparation**

Remove all visibly delaminated and deteriorated loose overhead concrete from the underside and bottom corners of the slab or deck. Take necessary precautions while removing deteriorated concrete to preserve all existing reinforcing steel. Sawcutting of edges is not needed. Concrete and adjacent surfaces should be dry, clean, and free of all dirt, oil, grease, efflorescence, sealers, coatings, curing compounds, and membranes. Clean existing spalled surfaces and spalled surfaces created by overhead concrete removals on the slab underside by steam cleaning, water blasting, or sandblasting. Use an air compressor with water and oil trap to ensure the cleaning method does not apply materials intended for removal. Use brush, broom, sweeper, or air compressor to chase cracks and on surfaces as final cleaning before application. Implement necessary procedures to prevent debris from impacting or damaging nearby traffic.

### **C.2 Surface Treatment Application**

Use a corrosion inhibitor intended for vertical or overhead surface applications. Apply the solution by spray (conventional airless or hand pressure spray equipment), roller, squeegee, or paintbrush. Follow manufacturer's application rate, but at a minimum apply a rate of 150 square feet per gallon (3.7 square meters per liter). Minimal dry time is required and is usually minutes after treatment. Do not apply if the ambient temperature near the applied concrete surface is expected to fall below 32° F within 12 hours of application or if precipitation is expected within 8 hours after application.

## **D Measurement**

The department will measure Concrete Surface Removal by the square foot, acceptably completed.

## **E Payment**

The department will pay for the measured quantities at the contract unit price under the following bid item:

<b>ITEM NUMBER</b>	<b>DESCRIPTION</b>	<b>UNIT</b>
SPV.0165.02	Concrete Surface Removal	SF

Payment is full compensation for concrete removal and disposal, cleaning preparation, furnishing, and for applying the product.