

Special Provisions

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SPECIAL PROVISIONS

1. General.

Perform the work under this construction contract for Project 14-3775(11), Genesee Street, Mill Street to Oakwood Road, C.T.H. "C", Waukesha 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, 2015 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 (20141107)

2. Scope of Work.

The work under this contract shall consist of miscellaneous removals, excavation common, base aggregate dense ¾-Inch, 1-1/4 inch & 3-Inch, HMA pavement Type C-1, storm sewer, lighting, pavement marking, permanent signing, Structure B-67-358, mill race culverts, landscaping, streetscaping and all incidental items necessary to complete the work.

104-005 (20090901)

3. Prosecution and Progress.

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

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

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

Stage 1 Work is anticipated to begin on Monday, February 8, 2016, and shall include all clearing and grubbing work. All clearing and grubbing shall be complete Friday, February 26, 2016.

Stage 2 work is anticipated to begin in June 2016, and shall include installation of traffic control devices, installation of erosion control measures and removals and temporary pavement widening required to accommodate Stage 3 & 4 traffic. Construct the west side of Genesee Street between Mill Street and Exeter Street including the west half of B-67-

0358 and the west half of the Mill Race culverts. The lower layers of asphaltic concrete pavement shall be placed in Stage 2.

Stage 3 work: Construct the east side of Genesee Street between Mill Street and Exeter Street including the remainder of B-67-0358 and the remainder of the Mill Race culverts. Construct the west half of Genesee Street between Exeter Street and St. Johns Road (South). The lower layers of asphaltic concrete pavement shall be placed in Stage 3.

Stage 4 work: Construct the remainder of the northbound lane between the Bark River Bridge and Oakwood Road. Construct the remainder of the southbound lane between St. Johns Road (South) and Oakwood Road. Construct the asphalt path on the east side of Genesee Street between Church Street and Oakwood Road.

Stage 5 work: Construct the center median north of Exeter Street. Place surface layer of asphaltic concrete pavement, pavement markings and install permanent signing and restoration. Stage 5 work is anticipated to be completed by Wednesday, November 23, 2016.

Stage 6 work is anticipated to begin on Monday, May 1, 2017 and includes plantings, final restoration and the remainder of the contract items.

All work shall be completed by 11:59 PM, Tuesday, May 16, 2017.

The department will not grant time extensions to the completion dates specified above 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.
4. Utility construction.

Restoration

Due to the sensitive nature of the wetland and waterway, temporary seed or permanent restoration shall occur no later than 24 hours after any soil/grading disturbance. All stock piles shall be seeded and covered with erosion mat same day, or covered with plastic.

4. Real Estate Commitments

The Contractor is to review the real estate commitments for the project prior to mobilization and notify the engineer in writing of any provisions that are outside of the scope of work associated with this Contract.

5. Traffic.

Genesee Street shall remain open to traffic during construction. The project will be constructed in stages as shown on the traffic control plans, temporary signal plans and as described in the Prosecution and Progress Article. No modifications shall be made to the traffic control plans without the approval of the engineer. The contractor shall maintain

one lane of traffic in each direction at all times on Genesee Street north of Exeter Street. The contractor shall maintain one lane open to through traffic at all times during construction of the bridge and mill race culverts through the use of temporary traffic signals between Mill Street and Exeter Street. Temporary delays to through traffic, not to exceed 10 minutes, will be allowed during non-peak traffic times for the unloading of materials or ready-mix concrete trucks for the bridge work. Flag persons shall be used at the temporary signals when materials are being delivered and during concrete pours to prevent vehicles from entering the work area.

The lane(s) open to traffic shall be kept free of construction equipment, materials, and obstructions, except as directed by the engineer. The bridge work area and adjacent approaches shall be kept free of all equipment restricting visibility, except during the times actual work is being performed.

Designate an individual responsible for access of local traffic, all emergency traffic and emergency control repair. Provide the name and telephone number of this individual to the engineer.

Emergency vehicle access shall be provided at all times on Genesee Street with access to all side roads.

Weekly updates shall be provided to the City of Delafield, Lake Country Fire Department and Waukesha County dispatch to ensure that emergency personnel are able to adequately plan their travel routes and emergency response needs.

Vehicular access along all roads shall be maintained at all times for all emergency vehicles and all residential and commercial driveways. Vehicular access shall be maintained on the existing pavement, new HMA pavement, or base aggregate. During non-working hours, the roadway shall be open to traffic with one lane in each direction north of Exeter Street and a passable width of not less than 11 feet per traffic lane. During Stages 2 & 3, from Mill Street to Exeter Street, one 11 foot lane shall be open to traffic with the temporary traffic signal operating.

No driveway approaches shall be closed or removed from service without 24 hours notice given to the occupants of the premises to remove their vehicle(s) prior to removal or closing of the driveway approach access.

All traffic control signs shall be masked out or covered when not in use or when not applicable.

Vehicles, equipment, and materials of the Contractor or his employees shall not be parked or stored on or adjacent to roadways within ten (10) feet of the travel lane except when approved by the engineer.

When existing pavement has to be removed adjacent to a live traffic lane, and a full time lane closure is not permitted, the Contractor shall grade the existing aggregate under the

removed pavement up against the pavement slab to form a compacted shoulder with a minimum width of two (2) feet. This work shall be completed to eliminate any drop-offs until the final grading operation for the new or temporary pavement placement is in progress. In these areas, the Contractor shall schedule his operations to minimize the period of time between the removal of the existing pavement and placement of the new or temporary pavement. During the pavement removal, fine grading, aggregate placement, or paving operations adjacent to a live traffic lane, drums shall be placed in the traffic lane such that there is a ten (10) foot minimum clear lane width. This reduced lane width shall be allowed only for the minimum time necessary to complete each removal, grading, aggregate placement, or paving operation. Immediately upon completion of each operation, drums shall be placed such that the live traffic lanes are entirely clear.

Submit any traffic control change requests to the engineer at least 72 hours prior to an actual traffic control change. A request does not constitute approval.

6. Utilities.

This contract does not come under the provision of Administrative Rule Trans 220. 107-065 (20080501)

There are utility facilities within the construction limits of this project. Coordinate construction activities with a call to Diggers Hotline or a direct call to the utilities for the underground facilities in the area, as required per statutes. Take all required precautions when working within 18-inches of underground utilities. Use caution to maintain the integrity of underground utilities and maintain OSHA code clearances from overhead facilities at all times.

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.

Known utilities in the project area are as follows:

Century Link has underground copper at the following locations:

Location	Facility
STA 130+55 to STA 153+30, LT	Underground Duct Systems
STA 130+55 to STA 153+30, RT	Underground Copper
STA 134+25	Underground Crossing
STA 143+60	Underground Crossing
STA 147+15	Underground Crossing
STA 154+10	Underground Crossing

Proposed Work

None prior to this contract. All relocation work will be done after Stage 1 Clearing and Grubbing is complete and will be completed prior to the end of May 2016.

The Century Link contact is Mark Murn, (262) 392-5210.

Time Warner Cable has overhead facilities along the west side of CTH “C” throughout the length of the project.

Location	Facility
STA 130+55 to STA 153+30, LT	Overhead coaxial cable
STA 134+95	Overhead crossing
STA 140+40	Underground crossing
STA 147+45	Overhead crossing
STA 154+10	Underground crossing

Proposed Work

None prior to this contract. All relocation work will be done after Stage 1 Clearing and Grubbing is complete and will be completed prior to the end of May 2016.

The Time Warner Cable contact is Steve Storm, (414) 908-4785.

City of Delafield has a 12” transite freshwater supply pipe north of the Bark River culverts. The exact depth and route of the pipe is unknown. The City of Delafield Public Works Department was able to locate the pipe east and west of Genesee Street. The pipe is known to be non-friable asbestos-cement and must be handled and disposed of in accordance with all applicable laws. The scrap material shall be delivered to a landfill permitted for disposal of non-friable asbestos containing materials.

Location	Facility
STA 132+70	12” Freshwater Supply

Proposed Work

Freshwater Supply Relay is a bid item included in this contract. See Special Provision item SPV.0090.301.

The City of Delafield contact is Paul Zellner, (262) 303-4627.

Delafield-Hartland Water Pollution Control (DHWPC) has sanitary sewer located generally along the northbound edge of pavement of Genesee Street throughout the length of the project.

Location	Facility
STA 130+55 to STA 153+30, RT	Sanitary Sewer

Proposed Work

None prior to this contract. Sewer manholes will need to be adjusted or reconstructed by DHWPC during construction of the project due to roadway grade changes. The contractor shall coordinate with DHWPC to provide sufficient advance notice to schedule the work

and order necessary materials and to allow their staff access to the construction site to complete the work.

STA	LOCATION
130"C"+66.9	RT
130"C"+94.0	RT
131"C"+42.9	RT
132"C"+75.8	RT
134"C"+58.6	RT
135"C"+86.6	RT
137"C"+48.9	RT
137"C"+56.5	RT
139"C"+75.2	RT
143"C"+76.4	RT
147"C"+95.5	RT
149"C"+14.0	RT
149"C"+14.1	LT
151"C"+22.2	RT
152"C"+35.8	LT

The Delafield-Hartland Water Pollution Control contact is Scott Luczak, (262) 646-4364.

WE Energies (Electric) has overhead electric facilities along the west side of CTH “C” throughout the length of the project.

WE Energies also has several underground and overhead electric service lines located within the project limits.

It is imperative that the contractor contact WE Energies before removing any electrical underground cables, to verify that they have been abandoned and carry no electrical current. The contractor must not assume that unmarked facilities have been abandoned. At no time is it acceptable to push, pull, cut or drill an unmarked facility without explicit consent from We Energies. Contractor must call the WE Energies 24-hour dispatch lines to arrange for this verification.

WE Energies Electric dispatch at (800) 662-4797

Location	Facility
STA 130+55 to STA 153+30, LT	Overhead electric
STA 131+10	Overhead crossing
STA 133+90	Overhead crossing
STA 134+95	Overhead crossing
STA 137+25	Overhead crossing
STA 140+40	Underground crossing
STA 143+60	Underground crossing
STA 147+45	Overhead crossing
STA 154+15	Underground crossing

Proposed Work

None prior to this contract. All relocation work will be done after Stage 1 Clearing and Grubbing is complete and will be completed prior to the end of May 2016.

The WE Energies (Electric) contact is Bryan Stoehr, (414) 944-5516.

WE Energies (Gas) has underground gas facilities along the both sides of CTH “C” throughout the length of the project. The 4” steel main is generally located along the southbound edge of pavement. The 12” steel main runs along the east side of Genesee Street from Mill Street to the north side of Exeter Street where it crosses to the west side of Genesee Street and continues north to Oakwood Road on the west side of the 4” steel main.

Location	Facility
STA 130+55 to STA 153+30, LT	4” Steel Main
STA 130+55 to STA 134+80, RT	12” Steel Main
STA 134+80 to STA 153+30, LT	12” Steel Main
STA 140+50	Gas Main Crossing
STA 147+75, LT	Gas Main
STA 150+90	Gas Main Crossing

WE Energies also has underground gas service lines located at the following locations:

Location	Facility
STA 135+75	Gas service crossing
STA 145+50, LT	Gas service

Proposed Work

WE Energies plans to relocate the 4” and 12” gas mains to the east side of Genesee Street in conjunction with this contract.

It will be the responsibility of the contractor to remove and dispose of any gas main that is directly in conflict with their operation that does not contain asbestos in the coating.

Any facilities not explicitly identified as being relocated have been deemed to be not in conflict and will remain in place as is. It is expected that contractors will work safely around any facilities left within the workzone but not in conflict. If plans change such that facilities become in conflict, coordination will be required.

It is imperative the Contractor contact WE Energies before removing any gas facilities, to verify that they have been abandoned and carry no natural gas. The Contractor must not assume that unmarked facilities have been abandoned. At no time is it acceptable to push, pull, cut or drill an unmarked facility without explicit consent from WE Energies. Contractor must call the WE Energies 24 hour Dispatch lines to arrange for this verification.

WE Energies Gas Dispatch 1-800-261-5325.

The WE Energies (Gas) contact is Danielle Fink, (414) 944-5627.

7. **Public Convenience and Safety.**

Revise standard spec 107.8(6) as follows:

Check for and comply with local ordinances governing the hours of operation of construction equipment. Do not operate motorized construction equipment from 7:00 PM until the following 7:00 AM, unless prior written approval is obtained from the engineer.

107-001 (20060512)

8. **Holiday Work Restrictions.**

Do not perform work on, nor haul materials of any kind along or across any portion of the highway carrying Genesee Street (CTH "C") 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, May 27, 2016 to 6:00 AM Tuesday May 31, 2016

From noon Friday, July 1, 2016 to 6:00 AM Tuesday, July 5, 2016.

From noon Friday, September 2, 2016 to 6:00 AM Tuesday, September 6, 2016.

107-005 (20050502)

9. **Information to Bidders, U.S. Army Corps of Engineers Section 404 Permit.**

The department has applied for a U.S. Army Corps of Engineers Section 404 permit. Comply with the requirements of the permit in addition to requirements of the special provisions. A copy of the permit is available from Waukesha County by contacting Ed Hinrichs at (262) 548-7740.

10. **Environmental Protection**

Install and maintain proper erosion control measures throughout all phases of construction. Develop and submit an erosion control implementation plan (ECIP) to the Waukesha County Land Resource Division and the engineer 14 days prior to the preconstruction conference.

Water from dewatering operations must be pumped into a properly selected and sized sedimentation basin before the clean/filtered water is allowed to enter any waterway or wetland. The basin must remove suspended solids and contaminants to the maximum extent practicable. A properly designed and constructed sedimentation basin must take into consideration maximum pumping volume and the sedimentation rate of the soils to be encountered. Applicable WDNR Conservation Practice Standards (#1061 and others) are a tool for the contractor and engineer to reference to help in approaching maximum extent practicable. These standards can be found at the WDNR website: <http://dnr.wi.gov/runoff/stormwater/techstds.htm>.

All selected sites for waste and/or borrow must be adequate distance from and not within any waterway, wetland or floodway. Additionally, these selected sites may not impact fish, wildlife, endangered resources, water quality or air quality. Selected sites as well as temporary stockpiles must have erosion control measures (both temporary and permanent) installed to protect the resource.

11. **Environmental Protection, Aquatic Exotic Species Control.**

Exotic invasive organisms such as VHS, zebra mussels, purple loosestrife, and Eurasian water milfoil are becoming more prolific in Wisconsin and pose adverse effects to waters of the state. Wisconsin State Statutes 30.07, "Transportation of Aquatic Plants and Animals; Placement of Objects in Navigable Waters", details the state law that requires the removal of aquatic plants and zebra mussels each time equipment is put into state waters.

At construction sites that involve navigable water or wetlands, use the follow cleaning procedures to minimize the chance of exotic invasive species infestation. Use these procedures for all equipment that comes in contact with waters of the state and/or infested water or potentially infested water in other states.

Ensure that all equipment that has been in contact with waters of the state, or with infested or potentially infested waters, has been decontaminated for aquatic plant materials and zebra mussels prior to being used in other waters of the state. Before using equipment on this project, thoroughly disinfect all equipment that has come into contact with potentially infested waters. Use the following inspection and removal procedures (guidelines from the Wisconsin Department of Natural Resources http://dnr.wi.gov/topic/fishing/documents/vhs/disinfection_protocols.pdf for disinfection:

- Prior to leaving the contaminated site, wash machinery and ensure that the machinery is free of all soil and other substances that could possibly contain exotic invasive species;
- Drain all water from boats, trailers, bilges, live wells, coolers, bait buckets, engine compartments, and any other area where water may be trapped;
- Inspect boat hulls, propellers, trailers and other surfaces. Scrape off any attached mussels, remove any aquatic plant materials (fragments, stems, leaves, seeds, or roots), and dispose of removed mussels and plant materials in a garbage can prior to leaving the area or invested waters; and
- Disinfect your boat, equipment and gear by either:
 - Washing with ~212° F water (steam clean), or
 - Drying thoroughly for five days after cleaning with soap and water and/or high pressure water, or
 - Disinfecting with either 200 ppm (0.5 oz per gallon or 1 Tablespoon per gallon) Chlorine for 10-minute contact time or 1:100 solution (38 grams per gallon) of Virkon Aquatic for 20- to 30-minute contact time. Note: Virkon is not registered to kill zebra mussel veligers nor invertebrates like spiny water flea. Therefore this disinfect should be used in conjunction with a hot water (>104° F) application.

Complete the inspection and removal procedure before equipment is brought to the project site and before the equipment leaves the project site.
107-055 (20130615)

12. **Construction Over or Adjacent to Navigable Waters.**

Supplement standard spec 107.19 with the following:

The Bark River is classified as a navigable waterway and is known to be used by non-motorized watercraft. The Contract shall exclude navigation by watercraft from the working area by placing orange-and-white exclusion buoys (a diamond shape with a cross means boats are prohibited from the area) upstream and downstream of the work area in conformance to the U.S. Aids to Navigation System published by the U.S. Coast Guard. The buoys shall be considered incidental to the cofferdam item.

A Waterway Marker Application and Permit (WDNR Form 8700-058) is required and must be obtained by the Contractor prior to the start of in-water work.

13. **Geotechnical Investigation Information.**

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

Available information relative to subsurface exploration, borings, soundings, water levels, elevations or profiles are available from Waukesha County by calling Ed Hinrichs, (262) 548-7740.

Geotechnical Engineering Services Report
Project Design ID 14-3775(11)
Genesee Street (CTH C)
Mill Street to Oakwood Road
December 5, 2014

Review the available information to determine if it is of use. The use or not of the geotechnical information does not relieve performing the work in accordance to the plans and specifications.

14. **Contractor Notification.**

Replace standard spec 104.2.2.2(2) with the following:

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

104.3.2 (Vacant)

104.3.3 Contractor Initial Written Notice

Replace standard spec 104.3.2 and 104.3.3 with the following:

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

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

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

15. Notice to Contractor, Northern Long-eared Bats

Northern Long-eared Bats (*Myotis septentrionalis*) (NLEB) have potential to inhabit the project limits.

There shall be no Clearing for this contract, from April 1 to September 30, in order to avoid adverse impacts upon the NLEBs.

Notify engineer 14 days in advance of any work on box culverts or bridges to allow time for department to complete the Bats Presence Structure Inspection Form.

Submit a schedule and description of Clearing and Grubbing operations to the engineer 14 days prior to any Clearing operations. The department will determine, based on schedule and scope of work, what erosion control shall be implemented prior to the start of Clearing operations.

(For use with the April 1 to September 30 time period only)

If the required Clearing is not completed by the end of the dormant period of the NLEB (March 31), all clearing and associated work will be suspended. This suspension will continue until United States Fish and Wildlife Service (USFWS) has been consulted and the engineer has issued a 'Notice to Proceed'. An Interim Liquidated Damage of \$5,000 per day will be assessed for the time that the Clearing remains incomplete.

16. Notice to Contractor, St. John's Military Academy Graduation

Do not perform work on, nor haul materials of any kind along or across any portion of the highway carrying Genesee Street (CTH "C") traffic, and entirely clear the traveled way, shoulders and sidewalks of equipment, barricades, signs, lights, and any other material that might impede the free flow of vehicular and pedestrian traffic during the St. John's Military Academy graduation proceedings between 8:00 AM Friday, May 20, 2016 to 6:00 PM Sunday May 22, 2016.

17. Notice to Contractor, Concrete Washout Containment.

All concrete trucks shall wash out into a containment system located sufficiently away from the work area to prevent runoff into wetlands and drainage courses associated with the Bark River. A construction detail and location of the containment system shall be included in the Erosion Control Implementation Plan and reviewed with the project leader prior to use.

18. Notice to Contractor, Aggregate Materials.

All base course materials shall be crushed limestone obtained from quarries.

19. Work by Others

There is no known regularly scheduled work along the C.T.H. "C" corridor during the time this Contract is under construction.

20. Retainage

Section 109.6.3.3 of the Standard Specifications shall be changed to read as follows:

All retainage shall be determined in accordance with the applicable State Statutes.

The total amount of this estimate, as determined above, will be reduced by an amount of five (5) percent for retainage. In addition, all liquidated damages and claims shall be deducted from this estimate. When work under this Contract has reached fifty (50) percent of the total Contract value, no further retainage will be held.

When work under this Contract has been substantially completed to the extent that only minor or incidental operations remain to fully complete all of the work under the Contract, or upon completion and acceptance of the work, and pending final payment, the amount retained may be further reduced at the discretion of the engineer.

Amounts will be retained from each partial payment, as necessary, to provide for the recovery of liquidated damages assessable against the Contract and as required to cover any claims against the Contract that have been filed with the DEPARTMENT pursuant to Chapter 779 of the Wisconsin Statutes prior to payment of this estimate.

21. Erosion Control

Subsection 107.20 of the Standard Specifications is hereby supplemented with the following:

“The Contractor shall pursue operations in a timely and diligent manner, continuing all construction operations methodically from the initial topsoil stripping operations through the subsequent grading, and re-topsoiling the disturbed areas to minimize the period of exposure to possible erosion.

Re-topsoiling of graded areas, as designated by the engineer, shall be done immediately after grading is completed within those areas during the various stages of construction. All topsoiled areas shall be fertilized, seeded, and mulched, or sodded as required within ten (10) working days after the placement of topsoil.

All erosion control stabilization shall be in place and functional at the time of completion of the project and as directed by the engineer.”

22. Excavation Below Subgrade.

Organic soils have been identified within the project limits and excavation below subgrade is anticipated. The actual limits to be excavated shall be determined in the field by the engineer based upon the observed presence of unsuitable soils or on the basis of the results of proof rolling the earth subgrade. The depth of excavation may be adjusted depending on the conditions found in the field and the proof rolling results.

To gain acceptance of the subgrade, the Contractor, in the presence of the engineer, shall proof roll all roadways in accordance with Article 53 - Proof Rolling.

Excavation below subgrade found necessary and required after the completion of the rough grading operations shall be in accordance with the pertinent requirements of Subsections 205.3.4 and 205.5.5 of the Standard Specifications.

Paragraph 2 of Subsection 205.5.2 shall be changed to read as follows:

“Excavation Below Subgrade performed either before or after rough grading operations are complete will be paid for at the Contract unit price for Excavation Common.”

23. Pulverize and Relay.

A. Description

The work under this item shall consist of constructing base course by pulverizing in place the existing asphaltic pavement and relaying the pulverized material over the existing roadbed. All work shall be in accordance with Section 325 of the Standard Specifications and as hereinafter modified.

B. Construction Methods

The existing asphaltic surface shall be pulverized full depth and to a minimum of 97 percent passing a 2-inch screen. The Contractor shall exercise due care to minimize the amount of crushed aggregate base course which is disturbed by the pulverizing process. Where the proposed pavement width exceeds the existing pavement width, the existing shoulder material may be pulverized provided the material is acceptable to the County.

After pulverizing, the material shall be distributed and placed using a paver or grader, or a combination of a paver and a grader, equipped with automatic cross-slope control.

Where the proposed pavement width exceeds the existing pavement width, pulverized shoulder material shall be evenly dispersed across the entire roadway width.

The pulverized material shall be immediately compacted in the following sequence: first with either a rubber tired roller or vibratory pads foot roller, and second with a vibratory steel roller. Each layer shall be compacted to the extent required for Standard Compaction in Section 301 and 305 of the Standard Specifications. The compaction equipment shall be as follows:

For a compacted depth of pulverized material, up to 6-inches, compaction equipment shall be in accordance with Section 301 of the Standard Specifications.

For a compacted depth of pulverized material, greater than 6-inches and up to 8-inches, a minimum 25 ton rubber tired roller with 90 psi tire pressure or 25,000 lb. pads foot vibratory roller, and a minimum 8 ton vibratory steel roller shall be used.

For compacted depths of greater than 8-inches, split lift, compaction according to the above-described methods will be required.

At the completion of each working day, the ends of the pulverized and relayed asphaltic pavement shall be as adjacent as practical for both traffic lanes.

24. **HMA Pavement Type C-1 PG58-28, Item 460.1100**

A. Description

This work shall consist of manufacturing, hauling, placing, and compacting a hot mix asphalt pavement or overlay on those projects designated above.

B. Construction Methods

All construction methods shall conform to the applicable provisions of Sections 450, 455, and 460 of the Standard Specifications.

C. Mixture Design and Gradation

No. of Gyration	40
VMA (min.)	13.0
Percent Binder (min.)	5.0
Percent Crush (min.)	60 /1Face
Percent Elongated	<5

D. Method of Measurement

HMA Pavement Type C-1 PG58-28 shall be measured for payment by the ton, in place and accepted, based on the load ticket quantity as collected by the inspector.

E. Basis of Payment

HMA Pavement Type C-1 PG58-28, measured as provided for above, shall be paid for by the Contract unit price per ton, which price shall be considered payment in full for manufacturing, hauling, placing, and compacting a hot mix asphalt pavement or overlay, and for all labor, tools, equipment, and incidentals necessary to complete the work in accordance with the Contract.

25. Railing, Steel, Type C1 Galvanized, Item 513.7005

A Description

This special provision describes fabricating, galvanizing, coating and installing railing in accordance with standard spec 506, 513 and 517 and the plan details, as directed by the engineer, and as hereinafter provided.

B Materials

All materials for railing shall be new stock, free from defects impairing strength, durability and appearance. Galvanize and coat railing assemblies with a two-coat system. Bubbles, blisters and flaking in the coating will be a basis for rejection.

Furnish grade A, A-FA, A-S, A-T, A-IS, or A-IP concrete conforming to 501.2.

B1 Coating System

B1.1 Galvanizing

Fabricate railings to meet the requirements of ASTM A385. After fabrication, blast clean steel railing assemblies per SSPC-SP6 and galvanize according to ASTM A123. Drill vent holes in members as required to facilitate galvanizing and drainage. Show location and size of vent holes on the shop drawings. Remove all burrs at component edges, corners and at holes and chamfer sharp edges before galvanizing. Condition any thermal cut edges before blast cleaning by shallow grinding or other cleaning to remove any hardened surface layer. Remove all evident steel defects exposed in accordance to AASHTO M 160 prior to blast cleaning. Lumps, projections, globules, or heavy deposits of galvanizing, which will provide surface conditions that when coated will produce unacceptable aesthetic and/or visual qualities, will not be permitted. Water quenching and chromate or other passivating treatments will not be permitted.

B1.2 Two Coat System

After galvanizing, coat all exterior surfaces of steel railing assemblies and inside of rail elements at field erection and expansion joints with a two coat system as hereinafter provided.

Clean all galvanized surfaces to be coated per SSPC-SP1 to remove chlorides, sulfates, zinc salts, oil, dirt, organic matter and other contaminants. Brush blast clean the cleaned surface per SSPC-SP16 to create a slight angular surface profile per manufacturer's recommendation (1 mil minimum, 1.5 mils maximum) for adhesion of the tie coat.

Remove wet storage stains prior to blasting per SSPC-SP16. Perform brush blasting at an angle of 30 to 60 degrees to the surface using air pressure no greater than 50 psi, and a soft abrasive such as Garnet. Steel shot and angular iron blasting grit will not be permitted. Brush blast the surface to produce a matte silver appearance. When brush blasting do not fracture the galvanized finish or remove any dry film thickness. Prior to application of the tie-coat, remove visible deposits of oil, grease and other contaminants from the surface per SSPC-SP1, and clean the brush blasted surface of dust, dirt and loose residue in accordance to standard spec 517.

After cleaning and within 8 hours of blasting, apply a tie coat from an approved coating system that is specifically intended to be used on a galvanized surface, per manufacturer's recommendations. The tie coat shall etch the galvanized rail and prepare the surface for the top coat. Apply a top coat per manufacturer's recommendations, matching the specified color shown on the plans. Use an approved top coat that is resistant to the effects of the sun and is suitable for a marine environment. The tie and top coats should be of contrasting colors, and come from the same manufacturer.

Ensure that the coating manufacturer reviews the process to be used for surface preparation and application of the coating system with the coating applicator. The review shall include a visit to the facility performing the work if requested by the coating manufacturer. Provide written confirmation, from the coating manufacturer to the engineer, that the review has taken place and that issues raised have been addressed before beginning coating work under the contract.

Use one of the qualified coating manufacturers and products given below. An equivalent system may be used with the written approval of the engineer.

Manufacturer	Products	Dry Film Minimum Thickness (mils)	Min. Time¹ Between Coats (hours)
<u>Sherwin Williams</u> 1051 Perimeter Drive Suite 710 Schaumburg, IL 60173 847-330-1562	Recoatable Epoxy Primer B67-5 Series / B67V5 Acrolon 218 HS Polyurethane, B65-650	2.0 to 4.0 2.0 to 4.0	6 NA
<u>Carboline</u> 350 Hanley Industrial St. Louis, MO 63144 314-644-1000	Rustbond Penetrating Sealer FC Carboguard 60 Carboguard 635 Carbothane 133 LH(satin)	1 4.0 to 6.0 4.0 to 6.0 4	36 10 1 NA
<u>Wasser Corporation</u> 4118 B Place NW Suite B Auburn, WA 98001 253-850-2967	MC-Ferrox B 100 MC-Luster 100	3.0 to 5.0 2.0 to 4.0	8 NA
<u>PPG Protective and Marine Coatings</u> P.O. Box 192610 Little Rock, AR 72219-2610 414-339-5084	Amercoat 399 Amercoat 450H	3.0 to 5.0 2.0 to 4.0	3 NA

¹ Time is dependent on temperature and humidity. Contact manufacturer for more specific information.

B2 Shop Drawings

Submit shop drawings showing the details of railing construction. Show the railing height post spacing, rail location, weld sizes and locations and all dimensions necessary for the construction of the railing. Show location of shop rail splices, field erection joints and expansion joints. State the name of the coating manufacturer and the product name of the tie coat and top coat used along with the color. State the size and material type used for all components. Also show the size and location of any vent or drainage holes provided.

C Construction

C1 Delivery, Storage and Handling

Deliver material to the site in an undamaged condition. Upon receipt at the job site, thoroughly inspect all materials to ensure that no damage occurred during shipping or handling and conditions of materials is in conformance with these specifications. Handle coated railing in accordance to standard spec 517. If coating is damaged, repair or replace railing assemblies to the approval of the engineer at no additional cost to the owner. Carefully store the material off the ground to ensure proper ventilation and drainage. Exercise care so as not to damage the coated surface during railing installation. No field welding, field cutting or drilling will be permitted without the approval of the engineer.

C2 Touch-up and Repair

For minor damage caused by shipping, handling or installation to coated surfaces, touch-up the surface in conformance with the manufacturer's recommendations and conforming to ASTM A780. If damage is excessive, replace the railing assembly at no additional cost to the owner. Provide the engineer with a copy of the manufacturer's recommended repair procedure and materials before repairing damaged coatings.

C3 Concrete Bases

Construct concrete bases according to section 654.3 of the standard specifications and as shown in the plan details. Locate bases as shown on the plans or as directed by the Engineer.

26. Railing Steel Type NY4 B-67-358, Item 513.7084

A Description

This special provision describes fabricating, galvanizing, coating and installing railing in accordance with standard spec 506, 513 and 517 and the plan details, as directed by the engineer, and as hereinafter provided.

B Materials

All materials for railing shall be new stock, free from defects impairing strength, durability and appearance. Galvanize and coat railing assemblies with a two-coat system. Bubbles, blisters and flaking in the coating will be a basis for rejection.

B1 Coating System

B1.1 Galvanizing

Fabricate railings to meet the requirements of ASTM A385. After fabrication, blast clean steel railing assemblies per SSPC-SP6 and galvanize according to ASTM A123. Drill vent holes in members as required to facilitate galvanizing and drainage. Show location and size of vent holes on the shop drawings. Remove all burrs at component edges, corners and at holes and chamfer sharp edges before galvanizing. Condition any thermal cut edges before blast cleaning by shallow grinding or other cleaning to remove any hardened surface layer. Remove all evident steel defects exposed in accordance to AASHTO M 160 prior to blast cleaning. Lumps, projections, globules, or heavy deposits of galvanizing, which will provide surface conditions that when coated will produce unacceptable

aesthetic and/or visual qualities, will not be permitted. Water quenching and chromate or other passivating treatments will not be permitted.

B1.2 Two Coat System

After galvanizing, coat all exterior surfaces of steel railing assemblies and inside of rail elements at field erection and expansion joints with a two coat system as hereinafter provided.

Clean all galvanized surfaces to be coated per SSPC-SP1 to remove chlorides, sulfates, zinc salts, oil, dirt, organic matter and other contaminants. Brush blast clean the cleaned surface per SSPC-SP16 to create a slight angular surface profile per manufacturer's recommendation (1 mil minimum, 1.5 mils maximum) for adhesion of the tie coat. Remove wet storage stains prior to blasting per SSPC-SP16. Perform brush blasting at an angle of 30 to 60 degrees to the surface using air pressure no greater than 50 psi, and a soft abrasive such as Garnet. Steel shot and angular iron blasting grit will not be permitted. Brush blast the surface to produce a matte silver appearance. When brush blasting do not fracture the galvanized finish or remove any dry film thickness. Prior to application of the tie-coat, remove visible deposits of oil, grease and other contaminants from the surface per SSPC-SP1, and clean the brush blasted surface of dust, dirt and loose residue in accordance to standard spec 517.

After cleaning and within 8 hours of blasting, apply a tie coat from an approved coating system that is specifically intended to be used on a galvanized surface, per manufacturer's recommendations. The tie coat shall etch the galvanized rail and prepare the surface for the top coat. Apply a top coat per manufacturer's recommendations, matching the specified color shown on the plans. Use an approved top coat that is resistant to the effects of the sun and is suitable for a marine environment. The tie and top coats should be of contrasting colors, and come from the same manufacturer.

Ensure that the coating manufacturer reviews the process to be used for surface preparation and application of the coating system with the coating applicator. The review shall include a visit to the facility performing the work if requested by the coating manufacturer. Provide written confirmation, from the coating manufacturer to the engineer, that the review has taken place and that issues raised have been addressed before beginning coating work under the contract.

Use one of the qualified coating manufacturers and products given below. An equivalent system may be used with the written approval of the engineer.

Manufacturer	Products	Dry Film Minimum Thickness (mils)	Min. Time¹ Between Coats (hours)
<u>Sherwin Williams</u> 1051 Perimeter Drive Suite 710 Schaumburg, IL 60173 847-330-1562	Recoatable Epoxy Primer B67-5 Series / B67V5 Acrolon 218 HS Polyurethane, B65-650	2.0 to 4.0 2.0 to 4.0	6 NA
<u>Carboline</u> 350 Hanley Industrial St. Louis, MO 63144 314-644-1000	Rustbond Penetrating Sealer FC Carboguard 60 Carboguard 635 Carbothane 133 LH(satin)	1 4.0 to 6.0 4.0 to 6.0 4	36 10 1 NA
<u>Wasser Corporation</u> 4118 B Place NW Suite B Auburn, WA 98001 253-850-2967	MC-Ferrox B 100 MC-Luster 100	3.0 to 5.0 2.0 to 4.0	8 NA
<u>PPG Protective and Marine Coatings</u> P.O. Box 192610 Little Rock, AR 72219-2610 414-339-5084	Amercoat 399 Amercoat 450H	3.0 to 5.0 2.0 to 4.0	3 NA

¹ Time is dependent on temperature and humidity. Contact manufacturer for more specific information.

B2 Shop Drawings

Submit shop drawings showing the details of railing construction. Show the railing height post spacing, rail location, weld sizes and locations and all dimensions necessary for the construction of the railing. Show location of shop rail splices, field erection joints and expansion joints. State the name of the coating manufacturer and the product name of the tie coat and top coat used along with the color. State the size and material type used for all components. Also show the size and location of any vent or drainage holes provided.

C Construction

C1 Delivery, Storage and Handling

Deliver material to the site in an undamaged condition. Upon receipt at the job site, thoroughly inspect all materials to ensure that no damage occurred during shipping or handling and conditions of materials is in conformance with these specifications. Handle coated railing in accordance to standard spec 517. If coating is damaged, repair or replace railing assemblies to the approval of the engineer at no additional cost to the owner. Carefully store the material off the ground to ensure proper ventilation and drainage. Exercise care so as not to damage the coated surface during railing installation. No field welding, field cutting or drilling will be permitted without the approval of the engineer.

C2 Touch-up and Repair

For minor damage caused by shipping, handling or installation to coated surfaces, touch-up the surface in conformance with the manufacturer's recommendations and conforming to ASTM A780. If damage is excessive, replace the railing assembly at no additional cost to the owner. Provide the engineer with a copy of the manufacturer's recommended repair procedure and materials before repairing damaged coatings.

27. Removing Signs and Posts Type II.

Stockpile all Signs Type II and metal posts that are removed within the project limits for salvage by Waukesha County. Contact Bruce Barnes 262-548-7740 for pickup of signs and posts.

28. Fence Safety

A Description

This special provision describes furnishing and installing a plastic fence at locations shown on the plans and as hereinafter provided.

B Materials

Furnish notched conventional metal "T" or "U" shaped fence posts.

Furnish fence fabric meeting the following requirements.

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

C Construction

Drive posts into the ground 12 to 18 inches. Space posts at 7 feet.

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

Overlap two rolls at a post and secure with wire ties.

D Measurement

The DEPARTMENT will measure Fence Safety by the linear foot along the base of the fence, center-to-center of posts.

E Payment

The DEPARTMENT will pay for measured quantities at the Contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
616.0700.S.	Fence Safety	LF

Payment is full compensation for furnishing and installing fence and posts; maintaining the fence and posts in satisfactory condition; and for removing and disposing of fence and posts at project completion.

616-030 (20070510)

29. Borrow Site and Disposal Sites

Subsections 628.4.12 and 628.5.12 of the Standard Specifications are amended as follows:

“All erosion control items acceptably furnished and placed on borrow sites and material disposal sites in accordance with the Contractor’s erosion control implementation plan, and at the request of the engineer, will not be measured for payment. The cost of furnishing and placing these items shall be incidental to the item of common excavation.”

30. Landscape Planting Surveillance and Care Cycles

If the care specialist fails to perform any of the required care cycles as specified in subsection 632.3.19.1 of the Standard Specifications, the Department will assess daily damages in the amount of \$300 to cover the cost of performing the work with other forces. The Department will assess these damages for each day the requirements of the care cycle remain incomplete, except when the engineer extends the required time period.

632-005 (20070510)

31. Geotextile Fabric Type SR.

The work under this item shall be in accordance to the pertinent requirements of standard spec 645 and as hereinafter provided.

Modify standard spec 645.2.5 (1) to include the following:

Furnish an integrally formed extruded polypropylene biaxial geogrid with an aperture size of 25mm X 33 mm and a minimum rib thickness of 0.76 mm. Acceptable products

include Tensar BX-1100, US Fabrics BaseGrid 11, ADS BX114GG, Mirafi BXG110, Propex Gridpro BXP11, Syntec SBX11 or other equivalent product approved by the Department for subgrade stabilization.

32. Lighting Systems, General

A General

Amend Sections 651, 652, 653, 654, 655, 656, 657 and 659 of the Standard Specifications as follows.

B Splices

B.1 Lighting units:

Splices shall accept (4) #14-#2 conductors, be underground/overhead rated and include gel filled hinged splice closure. Utilize NSI Easy-Splice Gel Tap Splice Kit series connectors (ESGTS-2), or equal by Burndy or Thomas & Betts. Split bolts are not allowed.

B.2 Pull boxes:

Splices shall accept quantity and size of conductors required at individual pull boxes (which may be of differing configurations), be direct burial and UL50 submersible rated. Utilize NSI Polaris Blue series multi-cable connectors, or equal by Burndy or Thomas & Betts. Split bolts are not allowed. No splices are allowed in pull boxes, unless indicated on the plans.

C Threaded Fasteners

All threaded fasteners (i.e. anchor bolts, screws, bolts, etc.) shall be liberally coated with an approved anti-seize compound, excess shall be wiped off. Excepting fasteners inside control cabinets, fasteners up to half an inch in diameter shall be stainless steel.

D Circuit Identification

Color coding shall be accomplished by use of cable jackets' of the proper color. All tails of all splices shall be coded. Secondary distribution circuits shall be color-coded as shown on the plans; the ground conductor shall be green.

Each and every accessible location of underground cable in control cabinet, pull boxes and pole bases (handholes) shall have a permanent weatherproof white nylon tag with TYPE D ¼" black lettering identifying the cabinet, conductor circuit number (i.e. "RK-1").

E Utility Coordination

Coordinate with WE ENERGIES for installation/connection of the new electrical service to the new lighting control cabinet.

33. Approved Electrical Materials Listing and Updates to the Standard Electrical Specifications

A. APPROVED ELECTRICAL MATERIALS LIST

651.3 Rust, Corrosive and anti-seize compound:
Hightemp-E-Z Break (Markal)
Never-seez (marine grade)
LPS 100 Lubriplate

652.3.1.1 (c) PVC Protective Caps or Plugs:
U.L. Listed

654.2.1 Pre-Cast Bases: (None are approved for let Contract work at this time.)

655.3.7 Secondary-In line Fuse Assembly:
Buss
Littlefuse
Gould Shawmut

655.3.8 - 659.3.2 Electrical Tape (Vinyl)
3M-33+
Plymouth
Okonite

656.2.5 Main Lugs Only Pedestal Service:
Check with Utility Company

34. Pull Boxes Steel 24x42-Inch, Item 653.0140

Supplement Section 653 of the Standard Specifications with the following: Extend a 2” PVC drain pipe from the pull box to the nearest ditch or storm sewer.

This modifies a standard item.

35. Electrical Service Meter Breaker Pedestal, Item 656.0200

Supplement Section 656 of the Standard Specifications with the following:

The Contractor shall apply for electrical service in the name of Waukesha County and Waukesha County will pay for all required utility extension fees.

This modifies a standard item.

36. Lighting Control Cabinet 120/240 24-Inch, Item 659.2124

A Description

This special provision describes furnishing and installing lighting control cabinet and concrete base as shown on the plans and hereinafter provided. The meter pedestal shall be paid for under a separate item.

B Materials

B.1 Contactor

A coil capable of operating at the nominal voltage specified. The Contractor shall be Square D LG series or equal by Cutler-Hammer or General Electric in a NEMA 1 enclosure with cover mounted hand-off-auto switch (with legend plate) – switch in separate enclosure is not allowed. Provide “LIGHTING CONTACTOR” engraved identification on cover of enclosure.

B.2 Photocell

Provide a button type photocell that is rated for 1500W with 30-60 second delay between “on-off” operations.

B.3 Panel

The load center shall be in a NEMA 1 enclosure as manufactured by Square D – NQOD (14” wide x 15” high) or equal by Cutler-Hammer or General Electric. Provide copper ground and split neutral bus bars in addition to copper bus bars. Provide bolt-on, thermal-magnetic circuit breakers that clearly indicate ON, OFF or TRIPPED position in the panel.

B.4 Enclosure

Provide a custom NEMA 4X enclosure made from .125" Type 5052-H32 aluminum size as indicated on the plans. Provide a double flanged doorframe. Provide stainless steel for all exterior hardware. Provide a 3/4" diameter stainless steel door handle with three point latching system and hasp. Provide a natural aluminum mounting panel at back (interior) of enclosure. Do not provide louvers. Cabinet shall be secured by a integral Corbin key lock – furnish 5 keys to the Owner. The enclosure shall have a natural satin aluminum finish. Provide an enclosure manufactured by APX Enclosures, Cleveland Manufacturing or Southern Manufacturing. NO manufacturer identification plaques/tags shall be visible on the exterior of the cabinet. Cabinet not to exceed size shown on the plans.

B.5 Field Wiring Termination Blocks

All connections from the field wiring to equipment in the lighting control cabinet shall be made through termination blocks. Provide quantity of channel mount NEMA rated, box lug, single terminal blocks as indicated on plans that are capable of holding #12 to #1/0 wire for power, neutral and grounding connections. The terminal blocks shall be mounted on a mounting channel (cut to appropriate length) with end anchors and an end barrier. Each terminal block shall have a typed label indicating the appropriate circuit number, neutral (‘N’) or ground (‘G’) wire connected to block; handwritten numbers and letters are not acceptable means of identification.

B.6 Surge Arrester

A surge suppressor shall protect the panel. The TVSS shall provide all modes of surge protection, meet UL1449 Second Edition with 26KA per mode and 78KA per phase surge current, contain LED line indicators, 5-year warranty, and dimensions of 7.5”H x 4.25”W x 4.0”D. Connect the surge suppressor to the branch circuit breaker as indicated on the plans. The surge arrester shall be equal to Intermatic EH Series or equal by Cutler-Hammer or LEA.

B.7 Concrete Base

Conform to Section 654.2 of the Standard Specification and the plans.

C Construction

Use a UL 508 Listed Panel Builder to assemble the lighting control cabinet. Assemble the lighting control cabinet with all of its electrical components, wiring and parts in a neat and orderly fashion and as shown on the plans. Pretest the cabinet prior to shipment to the site. Panel Builder shall apply UL label inside cabinet.

Mount all equipment to panel in enclosure. Train the cables in straight horizontal and vertical directions and be parallel next to and adjacent to other cables whenever possible. Install wiring in slotted wireway between terminal strip, contactor and panelboard. Secure all remaining wiring using screw attachment type straps; adhesive type will not be allowed.

Surge arresters shall be installed to allow LED indicator(s) to be readily visible when viewing inside of cabinet. Connect the surge arrester to the branch circuit breaker as indicated on the plans.

Install photocell in the overhang of the control cabinet facing down and apply silicon caulk to maintain integrity of the enclosure.

Make all connections from the field wiring to equipment in the lighting control cabinet through termination blocks.

Construct concrete base in conformance with Section 654.3 of the Standard Specifications and as shown on the plans.

D Measurement

The DEPARTMENT will measure the Lighting Control Cabinet as each individual unit acceptably completed.

E Payment

The DEPARTMENT will pay for measured quantities at the Contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
659.2124	Lighting Control Cabinet 120/240 24-Inch	Each

Payment is full compensation for photocontrol, contactors, panel, termination blocks, surge arrester, enclosure, grounding and electrical components, concrete base; and for all labor, tools, equipment and incidentals necessary to complete the work.

37. Storm Water Pond Outlet Control Structure, Item SPV.0060.101

A Description

The work of this item includes constructing storm water pond outlet structures shown on the plans and in accordance with Sections 611 of the Standard Specifications. It shall include furnishing all necessary materials to complete the items in accordance with the plans, specifications and contract

B (Vacant)

C (Vacant)

D Measurement

The department will measure Storm Water Pond Outlet Control Structure as each individual unit acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.101	Storm Water Pond Outlet Control Structure	Each

Payment for the Storm Water Pond Outlet Control Structure is full compensation for providing all labor, tools, equipment, and incidentals necessary to complete the contract work.

38. Excavation for Plant Beds, Item SPV.0035.601

A Description.

This work consists of providing all materials, labor, and equipment required to excavate landscape beds as shown per plans.

C. Construction.

The Contractor shall excavate planting areas as shown on the drawings. Before excavating for plant pits and beds, ensure that the areas conform to the specified lines and grades. On slopes steeper than 4H:1V, excavate pits no more than 5 days in advance of planting.

Excavate pits for balled and burlapped plants to a minimum of 2 times the width of the root ball and no deeper than the root ball as measured from the bottom of the trunk flare to the bottom of the ball. Excavate pits for containerized plants to a minimum of 2 times the width of the container and no deeper than the actual height of the root mass within the container. Ensure that side slopes of all pits taper down from the rim of the pit to the outer edge of the bottom of the ball. Ensure that the sides of the pits are loosened and roughened to promote root penetration.

For seedlings, vines, groundcovers and perennials excavate pits to a minimum of 12-inches diameter and 12-inch depth.

Excavated planting holes that will be left open when work is not in progress or pose an immediate and considerable hazard to pedestrian or vehicles shall be adequately barricaded with appropriate warning devices.

D. Measurement and Payment.

The completed work, as described, will be measure and paid for using the pay item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0035.601	Excavation for Plant Beds	CY

39. Backfill for Plant Beds, Item SPV.0035.602

A Description.

This work consists of providing all materials, labor, and equipment required to amend soil for landscape beds including weed control, applying and incorporating compost and fertilizer to landscape beds, transplanted tree beds and newly planted trees pits as shown per plans. This work must be done as described in sections 625 and 632 of the Standard Specification for Construction and as directed by the Engineer with the following amendments or additions.

B Materials.

All planting methods and materials must be in accordance with sections 625 and 632 of the Standard Specification for Construction and the planting details shown on the plans except that prepared soil for landscape beds and planted tree pits must consist of a mixture of compost as described below.

1. Compost. The compost must be a mature/ stabilized, humus-like material derived from the aerobic decomposition of yard clippings or other materials as designated compostable as defined in 1994 PA 451, Part 115 and must be in compliance with all federal and state laws. The compost must have a dark brown or black color, be capable of supporting plant growth without ongoing addition of fertilizers or other soil amendments and must not have an objectionable odor. It must be free of plastic, glass, metal and other physical containments, as well as viable weed seeds and other plant parts capable of reproducing (except airborne weed species). The compost moisture content must be such that no viable free water or dust is produced when handling it. The preferred moisture percent for finished compost is 40-50 percent.
2. Debris. All trash will become the property of the Contractor and removed at the Contractor’s expense from the right-of-way.

Table 1: Compost Requirements

Parameters	Reported as (units of measure)(a)	Compost material to be left un-vegetated
pH	pH units (TMECC 04.11-A)	6.0 - 8.5
Soluble Salt Concentration (<i>electrical conductivity</i>)	dS/m (mmhos/cm) (TMECC 04.10-A)	Maximum 5
Moisture Content	%, wet weight basis (TMECC 03.09A)	30 – 60
Organic Matter Content	%, dry weight basis (TMECC 05.07-A)	25 – 65
Medium Grade Particle Size (<i>aggregate size</i>)	% passing a selected mesh size, dry weight basis (TMECC1 02.02-B)	2 inch 100% 1 inch 90% minimum 3/4 inch 65% minimum 1/4 inch 50% maximum
Fine Grade Particle Size (<i>aggregate size</i>)	% passing a selected mesh size, dry weight basis (TMECC1 02.02-B)	3/4 inch or smaller 98% minimum
Stability Carbon Dioxide Evolution Rate	mg CO ₂ -C per g OM per day (TMECC 05.08-B)	< 8
Maturity Seed germination	%, compared to control (TMECC 05.05-A)	≥ 80% (<i>Only applicable with erosion control composts to be seeded</i>)
Trace Elements/Heavy Metals	ppm (mg/kg) on dry weight basis (TMECC 04.06):	Meets US EPA Part 503 EQ Concentration Limits
Pathogens	MPN/4 grams or MPN/gram of total solids (TMECC 07.01-B)	Salmonella < 3 MPN/4 grams of total solids or Fecal Coliform <1000 MPN/gram of total solids
Inert contamination (man-made)	%, dry weight (TMECC 03.08-A)	< 1.0%(no visible plastic, glass or metal allowed)
a. Based on Test Methods for the Examination of Composting and Compost (TMECC) standard listed.		

C. Construction.

1. Weed Control. The work of weed control is required to eliminate the weed competition from the compost amended planting areas and is included and paid for as part of this special provision. The Contractor is responsible for achieving and maintaining weed control at no extra cost to the Department, in all compost amended soil areas as shown on plans.
2. Compost Amended Soil Application – Medium Grade. Apply medium grade compost and fertilizer to all landscape bed areas, transplanted tree beds and newly planted tree pits according to compost requirements (Table 1). Apply compost and fertilizer mix uniformly over the existing site soil to a depth of 3 inches. Incorporate uniformly with existing soil to a depth of 12 inches using a rotary tiller or other approved equipment in landscape beds area only.

D. Measurement and Payment.

The completed work, as described, will be measure and paid for using the pay item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0035.602	Backfill for Plant Beds	CY

40. Portable Temporary Signal Unit, Item SPV.0060.301

A Description

This special provision describes installing, adjusting (location, aiming and timing), maintaining and relocating as necessary an interconnected self-contained portable temporary signal system for the duration of the contract.

B (Vacant)

C Construction

Locate portable temporary signal units as shown on the plans or as directed by the Engineer.

D Measurement

The department will measure Portable Temporary Signal Unit as each individual unit acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.301	Portable Temporary Signal Unit	Each

Payment for the Portable Temporary Signal Unit is full compensation for providing all labor, tools, equipment, and incidentals necessary to complete the contract work.

41. Concrete Endwall 2X60 RCP, Item SPV.0060.401

A Description

This special provision describes constructing a concrete headwall for double 60" concrete pipes installed at the mill race channel.

B Materials

Furnish grade A, A-FA, A-S, A-T, A-IS, or A-IP concrete conforming to 501.2.
Furnish HS reinforcement conforming to 505.2.

C Construction

Construct Concrete Endwall 2X60 RCP according to section 504.3 of the standard specifications and as shown in the plan details. Locate endwalls as shown on the plans or as directed by the Engineer.

D Measurement

The department will measure Concrete Endwall 2X60 RCP as each individual unit acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.401	Concrete Endwall 2X60 RCP	Each

Payment is full compensation for providing all materials; for all excavating, backfilling, disposing of surplus material; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the contract work.

42. Decorative Lighting Pole, Item SPV.0060.501

A Description

Furnish and install decorative lighting poles in accordance with the applicable provisions of the Standard Specifications and as shown on the plans and hereinafter provided.

B Materials

All materials shall be consistent with the existing street lighting on Genesee Street.

Supplier: Graybar Electric
 Brian Starner, brian.starner@graybar.com
 650 S. 108th Street
 West Allis, WI 53214
 (414) 607-7700

Pole Specifications:

Catalogue No: KCH12-G-S52-RBP-140(35/75)
 C/W DR-LRT-FH (See Special Pay Item Below)
 Section: Octagonal (Spun Concrete Pole)
 Color: Oriental Jade
 Finish: Polished
 Pole Top: 7" FL/FL
 Pole Butt: 16" FL/FL
 Pole Length: 12'-0"
 Approx Wt: 745 lbs
 Anchor Bolts: Ø3/4" X 27" lg Galvanized Anchor
 Raceway: Min 3" Raceway from BP to HH Box
 Min 1-1/8" HH to Pole Top

C Construction

Installation of this item shall conform to section 657.3 of the Standard Specifications or as modified above in the section titled Lighting Systems, General.

D Measurement

The DEPARTMENT will measure the Decorative Lighting Pole as each individual pole acceptably installed.

E Payment

The DEPARTMENT will pay for measured quantities at the Contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.501	Decorative Lighting Pole	Each

Payment for the Decorative Lighting Pole is full compensation for providing poles including grounding lugs and related mounting hardware; for hardware and fittings necessary to install the pole; for leveling shims; for installing identification plaques; and for corrosion prevention.

43. LED Luminaires and Accessories, Item SPV.0060.502

A Description

Furnish and install LED luminaire and accessories in accordance with the applicable provisions of the Standard Specifications and as shown on the plans and hereinafter provided.

B Materials

All luminaires and accessories shall be consistent with the existing street lighting on Genesee Street.

Supplier: Graybar Electric
 Brian Starnier, brian.starnier@graybar.com
 650 S. 108th Street
 West Allis, WI 53214
 (414) 607-7700

Luminaire Specifications:

Catalogue No: K601-T-P2FL-II-70/150(SSL)
 8070/80126-120:277-F2

Optical Design: LED Array

IES Class: Type II

Wattage: 70W (8070 Series), 150 W (80126 Series)

Light Source: Solid State Lighting

Line Voltage: 120:277V

Downlight: Solid Bottom

Optical Chamber: None

Powdercoat: Textured Black

Options: Brass F2 Finial, Decorative Struts

Accessories:

- Stresscrete Flag Holder & Bracket (1 per pole)
- Stresscrete Ladder Rests (2 per pole)
- Stresscrete Banner Supports (2 per pole)

C Construction

Installation of this item shall conform to section 659.3 of the Standard Specifications or as modified above in the section titled Lighting Systems, General.

D Measurement

The DEPARTMENT will measure the LED Luminaires and Accessories as each individual luminaire acceptably installed.

E Payment

The DEPARTMENT will pay for measured quantities at the Contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.502	LED Luminaires and Accessories	Each

Payment for the LED Luminaires and Accessories is full compensation for providing all materials including luminaires, ballasts, lamps, fittings, brackets, hardware and attachments; and for luminaire fusing if required.

44. Transplant Tree, Item SPV.0060.601

A Description.

This work consists of transplanting existing trees in accordance with section 632 of the Standard Specifications for Construction and the American Standard for Nursery Stock (ANSI Z60.1) and this special provision.

B Materials.

Use materials conforming to section 632 of the Standard Specifications for Construction. Protect the tree from damage during the digging, transporting and replanting process. Trees damaged by the Contractor must be replaced with similar type and size of tree as directed by the Engineer. The Contractor is responsible for all costs associated with replacing damaged trees.

C Construction.

The work includes but is not limited to the following:

1. Remove Existing Tree. The Contractor is responsible for utilizing an appropriate size tree spade or hand dig, ball and burlap, wrap trunks, rope and cover tops, then transport to the new location. Tree movers will use appropriate tree spade as shown below (or larger) to remove and transplant the trees:

2. Relocate existing trees as identified on the plans to new location as directed by the Engineer. Ensure trees are planted the same day they are dug.
3. Water transplanted trees within 3 days after transplanting with the probe method with a minimum of 35 gallons of water without fertilizer and continue watering for one growing season as described in subsection 6-40.6.10 of the Standard Specifications for Construction at no additional cost to the Department.

D Measurement and Payment.

The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.601	Transplant Tree	EA

Transplant Tree includes all labor, equipment and materials necessary to complete the work as described. No additional payment will be made for watering as specified.

45. Ornamental Grasses, Item SPV.0060.602

A Description.

This work consists of furnishing, transporting and planting ornamental and sedge meadow type grasses. This item should be completed using this special provision and the specifications of section 632.

B Materials.

Ornamental and Sedge Meadow type grasses.

C. Construction.

The work includes but is not limited to the following:

- Planting Time. Planting times for the various types of ornamental grasses shall be as follows: Ornamental and Sedge Meadow type plants shall be planted between May 1 and June 15 or between August 15 and September 15.
- Transporting and Storing Plants. The Engineer will inspect the plants at the work site at the beginning of each planting day and reject any material that is not properly packaged (including clear labeling by species) or that is not in a firm, moist, or viable condition. Any plants remained at the end of the day shall be removed from the work site and properly stored by the Contractor. Before plantings, sufficient water shall be added to potted plants to insure that the soil around the roots is not dry and crumbly when the plants are removed from the pots.
- Layout of Planting. When plants are specified to be planted in prepared soil planting beds, the planting bed shall be approved by the Engineer prior to planting.

- Planting Procedures. The spacing of the plants shall be as shown on the plans, or as directed by the Engineer, to uniformly fill the planting beds. Ornamental and Sedge Meadow Grasses shall be planted by a hand method approved by the Engineer.
- Period of Establishment. Ornamental Grasses and Sedge Meadow type grasses must undergo a 30 day period of establishment. Additional waterings shall be performed at least once within every seven days for four weeks following installation. Water shall be applied at the rate of 2 gal/ sq yd. Should excess moisture prevail, the Engineer may delete any or all of the additional watering cycles. In severe weather, the Engineer may require additional watering.

Watering of plants in beds shall be applied in such a manner that all plant holes are uniformly saturated without allowing the water to flow beyond the periphery of the bed. At the end of the period of establishment, the Contractor will be permitted to replace unacceptable plants and shall thoroughly weed all beds.

D Measurement and Payment.

The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.602	Ornamental Grasses	EA

46. Manhole Type MM, Item SPV.0060.701

A Description

Construct a Manhole Type MM to the elevation as shown on the plans and in accordance with the Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition and as hereinafter provided.

B Materials

The Contractor shall provide all necessary materials to complete the work including precast manhole with baffle walls, internal steps, adjusting rings, and granular backfill.

C Construction

Installation of this item shall conform to the standards for storm sewers, and as directed by DEPARTMENT.

The approximate location of manhole is indicated on the plans. Construct as necessary for proper placement according to the plans, construction details and standard detail drawings.

D Measurement

The DEPARTMENT will measure the Manhole Type MM as each individual unit acceptably complete.

E Payment

The DEPARTMENT will pay for measured quantities at the Contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.701	Manhole Type MM	Each

Payment for the Manhole Type MM is full compensation for providing all materials, labor, tools, equipment and incidentals necessary to complete the work.

47. No Mow Seeding, Item SPV.0085.601

A Description.

This special provision describes a seed mix for No Mow lawn areas. This item should be completed using this special provision and the specifications of section 630.

B Materials.

Furnish seed mix for No Mow Lawn.

Species	Percent Mixture (%)	Percent Germination
Festuca commutata Jameston IV Chewings	85	24.7
Festuca ovina 'Quatro Sheep Fescue	85	24.58
Festuca brevipila Henry Hard Fescue	85	12.10
Festuca brevipila 'Harpoon Hard' Fescue	85	12.73
Festuca rubra 'Lustorous Creeping Red' Fescue	85	11.66
Festuca rubra 'Sea Fire Slender Red' Fescue	85	12.77

D Measurement and Payment.

The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0085.601	No Mow Seeding	LB

Payment is full compensation for providing, handling and storing all seed; for providing the required culture and inoculating seed as specified; and for preparing the seed bed, sowing, covering and firming the seed, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the contract work.

48. Freshwater Supply Relay, Item SPV.0090.301

A Description

The work of this item includes removing and disposing of the existing 12-inch transite freshwater line, constructing Freshwater Supply Relay shown on the plans and in accordance with Standard Specification for Sewer & Water Construction in Wisconsin, 6th

Edition. It shall include furnishing all necessary materials to complete the items in accordance with the plans, specifications and contract. The existing freshwater supply line may be disconnected from use during construction of the new freshwater supply relay.

B Materials

Furnish 12-inch C900 PVC pipe, pipe wrap, tracer wire, all fittings, valves, granular backfill and sand bedding.

C (Vacant)

D Measurement

Freshwater Supply Relay shall be measured by the linear foot of pipe and incidentals, furnished, installed and approved in accordance with the terms of the contract, as shown on the plans or as altered by order of the Engineer.

E Payment

Freshwater Supply Relay, measured as provided above, will be paid for at the contract unit price per linear foot, which price shall be full compensation for excavation, disposal, hauling, furnishing and placing all materials and for all labors, tools, equipment and incidentals necessary to completed this item of work.

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.301	Freshwater Supply Relay	LF

49. Crosswalk Concrete Bands, Item SPV.0090.601

A Description

The work of this item includes constructing crosswalk concrete bands shown on the plans and in accordance with Sections 415 and 505 of the Standard Specifications. It shall include furnishing all necessary materials to complete the items in accordance with the plans, specifications and contract

B (Vacant)

C (Vacant)

D Measurement

Crosswalk Concrete Bands shall be measured by the linear foot of concrete band in place and approved in accordance with the terms of the contract, as shown on the plans or as altered by order of the Engineer

E Payment

Crosswalk Concrete Bands, measured as provided above, will be paid for at the contract unit price per linear foot, which price shall be full compensation for excavation, disposal, hauling, concrete, steel reinforcement, furnishing and placing all materials and for all labors, tools, equipment and incidentals necessary to completed this item of work.

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.601	Crosswalk Concrete Bands	LF

50. Tree Protection, Item SPV.0090.602

A Description.

This work consists of providing all labor, equipment and materials necessary to install, maintain and remove a temporary protective fence as directed by the Engineer. Ensure the fence provides protecting for existing trees and plants.

B Materials.

Provide a plastic or wooden snow fence, at least 48 inches tall, supported by posts. Posts must be as recommended by the fence manufacturer.

C Construction.

Furnish and install fence around trees at the drip line and loosely around low-branched plants. Place posts at 8 foot maximum intervals. Where plants are in groups, the entire group must be enclosed with fence.

Place fencing prior to the start of any construction activity. Remove fencing only when all remaining work is completed as directed by the Engineer. Maintain fence and kept upright and taut until it is no longer needed and removed. Replaced damaged sections of fence as necessary.

D Measurement and Payment.

The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.602	Tree Protection	LF

Tree Protection includes all labor, equipment and materials necessary to complete the work as described. Disposal of fence and posts is included in this pay and will not be paid for separately.

51. Root Pruning, , Item SPV.0090.603

A Description.

Work under this item shall consist of root pruning existing trees, at locations indicated by the Engineer.

B General Requirements.

The root pruning shall be performed or directly supervised by an International Society of Arboriculture (ISA) Certified Arborist, using a mechanical saw.

Root pruning shall occur:

- Immediately prior to construction of any formwork for curb, driveway or sidewalk.
- Immediately prior to any excavation of soil, concrete or other material adjacent to the tree protection fencing.
- When roots are damaged or torn inadvertently during construction, and shall be backfilled immediately.

The depth of root pruning shall not exceed the depth required for installation of the hardscape and excavation.

C Submittals.

The Contractor shall submit the following to the Commissioner at least 30 days prior to commencing the work:

- The Certified Arborist certification
- A report prepared by the Certified Arborist including: an assessment of quantity and size of trees to be root pruned, vertical location of tree roots, confirmation that less than one third of the trees' structural roots will be pruned, a disclosure of trees anticipated to be pruned on more than one side, a schedule of work and a schedule of watering.

D Construction.

Dimensions for root pruning of the existing trees along the proposed back of curb, driveway, sidewalk or other new construction shall be according to the following:

1. Small Trees (<10" D.B.H.): Unless noted otherwise, the root pruning trench shall offset no more than 1 foot from the back of the proposed new construction. The length of root pruning shall not be less than 5 feet on each side of the centerline of the tree.
3. Medium Trees (10"-15" D.B.H.): Unless noted otherwise, the root pruning trench shall be offset no more than 1 foot from the back of the new construction. The length of root pruning shall not be less than 10 feet on each side of the centerline of the tree.
4. Large Trees (>15" D.B.H.): Unless noted otherwise, the root pruning trench shall be offset no more than 1 foot from the back of the new construction. The length of the root pruning shall not be less than 15 feet on each side of the centerline of the tree.

D.B.H. represents the caliper measurement of the tree at 4'6" above the ground line.

Supplemental watering shall occur at a rate of 2 gallons per square foot of surface area within the root zone of the plant material having sustained damage to the root zone and/ or root pruning, within 24 hours of root pruning and twice weekly thereafter. Supplemental watering shall continue for a period of 90 days after completion of root pruning.

E Measurement and Payment.

The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.603	Root Pruing	LF

52. Stonework on Bridge, Item SPV.0105.301

A Description

The work of this item includes furnishing and installing the stone veneer and capstones complete in place at locations as designated on the plans, or as directed by the Engineer. It shall include furnishing all necessary materials to complete the item in accordance with the plans and pertinent parts of Sections 519 of the Standard Specifications.

B Materials.

Stone Veneer

The stone veneer shall be “Split Fieldstone”, to match the veneer on the Delafield Fish Hatchery Building located at 417 West Main St. for variety, color, finish, and other stone characteristics relating to aesthetic effects. Varieties and Sources: Subject to compliance with requirements, provide one of the following stone varieties from one of the following sources:

Halquist Stone Co., 23564 W. Lisbon Rd., Sussex, WI 53089.

Oakfield Stone Co. Inc., Route 1 – P.O. Box 221, Oakfield, WI 53065.

Eden Stone Co. Inc., Route 1, Eden, WI 53019

Provide Stone Samples for Verification: Sets for each color, grade, finish, and variety of stone required. Include 2 or more samples in each set showing the full range of variations expected in these characteristics. Obtain each variety of stone from a single quarry, whether specified in this section or in another section of the specifications.

Mortar

Provide Mortar in accordance with Section 519. Mortar color to match mortar color used at the Delafield Fish Hatchery Building located at 417 West Main St. Obtain mortar ingredients of uniform quality for each cementitious component from a single

manufacturer and each aggregate from one source or producer. Contractor to provide color sample of mortar (for stone veneer) for Engineer's approval.

Capstones

The caps shall be cut Indiana limestone per dimensions and sizes shown in drawings. Available suppliers of Indiana Limestone include the following:

1. Halquist Stone Co., 23564 W. Lisbon Rd., Sussex, WI 53089.
2. Oakfield Stone Co. Inc., Route 1 – P.O. Box 221, Oakfield, WI 53065.
3. Eden Stone Co. Inc., Route 1, Eden, WI 53019
4. Approval Equal

Provide Stone Samples for Verification: Include 2 or more samples showing the full range of variations expected in these characteristics. Obtain each variety of stone from a single quarry, whether specified in this section or in another section of the specifications.

Anchor Systems

Provide approved stainless steel anchoring system as indicated on the contract documents and as approved by the Engineer.

Stainless steel items shall be AISI Type 304 or Type 316, and shall conform to the following:

- Plate and bent bar anchors: ASTM A 480 and ASTM A 666.
- Sheet metal anchors and ties: ASTM A 480 and ASTM A240.
- Wire ties and anchors: ASTM A 580.

Dovetail slots shall be Heckman No. 100 Standard Dovetail Anchor Slots or engineer approved equal.

C Construction Methods.

The bridge stonework shall be constructed in accordance with Section 519 of the Standard Specifications and as noted below

Provide shop drawings for capstones that show dimensions, setting sequence, stone sizes and shapes, joint locations and arrangement, bonding details, installation methods and anchoring methods. Submit sample of each stone material showing full range of colors, textures and finishes available from the manufacturer.

Installers shall have a minimum of 5 years of successful experience in handling and installing stone veneer and cap units on projects of comparable size and scope. Stone supplier shall have a minimum 5 years of continuous successful experience in fabricating

stone veneers and caps, with demonstrated ability, facilities and capacity required to furnish requirements of this project without delay of work in progress.

Before installing stone masonry veneer, construct sample wall panels to verify selections made to demonstrate aesthetic effects and qualities of materials and execution. Locate mockups in the location as directed by Engineer. Build mockups for each type of stone masonry veneer in sizes approximately 48 inches long by 24 inches high by full thickness, including face and back-up. Include capstones as part of mockup. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work. Approved mock-ups may become part of the completed work if undisturbed at time of Substantial Completion. Final determination shall be made by Engineer.

Cut stone to produce pieces of thickness, size, and shape indicated and to comply with fabrication and construction tolerances recommended by applicable stone association or, if none, by stone source, for faces, edges, beds, and backs. Clean the saw cut edge of the stones to remove rust stains and iron particles. Provide Stone Masonry Veneer a minimum thickness of 5 inches. Stone veneer and joints shall match the aesthetic character and pattern of the Delafield Fish Hatchery Building. Hand shape beaded mortar joints to match the shape and profile of the joints of the Delafield Fish Hatchery building.

Set stone veneer and caps to comply with requirements indicated on Drawings. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure stone masonry veneer and caps in place. Set stone accurately in locations indicated with edges and faces aligned according to established relationships. Maintain uniform joint widths, except for variations due to stone size variations and minor variations required to maintain bond alignment, if any. Lay walls with joints to match Fish Hatchery joints.

Anchor masonry veneer and caps to concrete with stainless steel metal ties. Install dovetail slots and anchors according to manufacturer's instructions. Embed ties in mortar joints to within 1 inch of face and space ties as required. Set stone in full bed of mortar with full head joints, unless otherwise indicated. Build anchors and ties into mortar with full head joints, unless otherwise indicated. Build anchors and ties into mortar joints as stone is set. Clean stone masonry as work progresses. Remove mortar fins and smears before tooling joints. After mortar is thoroughly set and cured, clean stone masonry to comply with recommendations of ILI's "Indiana Limestone Handbook."

D Measurement

Stonework on Bridge will be measured by the lump sum, completed and accepted in accordance with the terms of the contract, as shown on the plans or as altered by order of the Engineer.

E Payment

Stonework on Bridge, measured as provided above, will be paid for at the contract unit price each, which price shall be full compensation for furnishing all materials; falsework, steel embedments, anchors, and reinforcement, stone veneer, stone caps, delivery,

installation, placement and finish; and for furnishing all labor, equipment, tools and incidentals necessary to complete this item of work.

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.301	Bridge Aesthetic Finishes	LS

53. Paver Crosswalk, Item SPV.0165.601

A Description

This work shall consist of installing unit pavers on concrete or aggregate base and sand setting bed as shown on the plans, and as hereinafter provided. Crushed aggregate base course is covered under separate item.

B Materials

B.1 Pavers

Clay Pavers shall be vacuum dry-press solid (uncored) hard-burned, clay pavers. The pavers shall have a factory sealed finish, rounded corners, beveled edges and spacer lugs. Full size samples of clay pavers shall be submitted to indicate color and shape selections. All clay pavers shall be from the same manufacturer.

Pavers shall be a clay paver that meets the minimum material and physical properties set forth in ASTM C-1272-95, Type F, Application PX, 10,000 psi. minimum average compressive strength, 6% maximum average absorption for walkways. Minimum static coefficient of friction shall be .60 for wet and .70 for dry tested in accordance with ASTM C 1028-96. The paver shall be true 4” x 8” x 2 3/4”. Color shall be “red sunset” by Whitacregrer.

B.2 Leveling Course

Leveling course shall be crushed limestone and conform to the grading requirements of ASTM C 33 as shown below:

LEVELING COURSE GRADING REQUIRMENTS

ASTM C 33	
Sieve Size	Percent Passing
9.5 mm	100
4.75 mm	95 to 100
2.36 mm	85 to 100
1.18 mm	50 to 85
600 µm	25 to 60
300 µm	10 to 30
150 µm	2 to 10

Joint sand shall be clean, non-plastic, and free from deleterious or foreign matter.

The sand shall be natural or manufactured from crushed rock and shall conform to the grading requirements of ASTM C 144 as shown below:

JOINT SAND GRADING REQUIRMENTS

ASTM C 144		
	Natural Sand	Manufactured Sand
Sieve Size	Percent Passing	Percent Passing
4.75 mm	100	100
2.36 mm	95 to 100	95 to 100
1.18 mm	70 to 100	70 to 100
600 µm	40 to 75	40 to 75
300 µm	10 to 35	20 to 40
150 µm	2 to 15	10 to 25
75 µm	0 to 5	0 to 10

Joint Sand Stabilizer Additive shall be one of the following:

1. SandLock by Pave Tech/Pave Chem, PO Box 576, Prior Lake, MN 55372, Phone 800-728-3832;
2. Resiblock '22' by Resiblock Ltd., Resiblock House, Archers Fields Close, Basildon, Essex SS13 1DW, UK Phone 44 (0) 1268 273344;
3. Techni-Seal Polymetric Sand available from Unilock Chicago, Inc., 301 East Sullivan Road, Aurora, IL 60504, Phone 800-UNILOCK; or
4. Approved Equal

B.3 Concrete Base

Construct concrete base as shown in the plans and in accordance with Sections 415 and 505 of the Standard Specifications.

C Construction

Installation shall be by a contractor and crew with at least five (5) years of experience in placing interlocking unit pavers on projects of similar nature or dollar cost. A 5 ft. x 5 ft. mock-up paver area shall be installed to illustrate joint sizes, lines, patter(s), color(s) and texture of the project. Pavers shall be included in mock-ups. Approval of mock up is required prior to completing this work. Failure to receive mock up approval may result in rejection of work. The approved mock up shall be the standard from which the work will be judged and approved by the Engineer.

C.1 Paver Installation

Spread leveling course evenly over the base and screed. Set pavers high enough to allow for settling that will occur during final compaction. The screeded leveling course should not be disturbed. Sufficient levelling course shall be placed in order to stay ahead of the laid pavers. Levelling course shall not be used to fill depressions in the base surface.

Pavers shall be free of foreign materials before installation. Pavers shall be inspected for color distributing and all chipped, damaged, or discolored pavers shall be replaced. The pavers shall be laid in the patterns as shown on the drawings and adjustments shall be made to allow for whole paver use as often as possible. Straight pattern lines shall be maintained.

Joints between the pavers shall be 1/16 inch and 5/32 inch wide. Pavers shall be cut with a double blade paver splitter or masonry saw.

Install edge restraints before placing unit pavers. Install edge restraints to comply with manufacturer's written instructions. Install stakes at intervals required to hold edge restraints in place during and after unit paver installation. Edge restraints shall be used along all unrestrained paver edges and supported on a minimum of 6 in. of aggregate base.

The paver surface shall be swept clean of all debris before compacting, in order to avoid damage from point loads. A low amplitude, high frequency plate compactor with compactive effort of 3000 lbs. shall be used to compact the pavers into the leveling course. The pavers shall be compacted and dry joint sand and joint sand stabilizer additive shall be swept into joints according to manufacturer's recommendations. All work to within 3 ft. of the laying face must be left fully compacted with sand-filled joints at the completion of each day.

The surface elevation of pavers shall be 1/8 to 1/4 in. above adjacent drainage inlets, concrete collars or channels.

D Measurement

Paver Crosswalk will be measured in area by the square foot complete as approved by the Engineer.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0165.601	Paver Crosswalk	SF

Paver Crosswalk, measured as provided above, will be paid for at the contract unit price per square foot, which price shall be full compensation for excavation; for furnishing all materials, including concrete base, leveling course, joint sand, and additive; edging; delivering installing placing, and cutting; accent pavers; finishing; and for all labor, equipment, tools, and incidentals necessary to complete this item of work.

54. Proof Rolling, Item SPV.0170.101

A Description

This special provision describes the testing of the stability of the compacted subgrade and base material by rolling with a tri-axle dump truck.

B Equipment

Fully load a tri-axle dump truck to within 3 tons of the vehicle legal load limit and provide a minimum gross vehicle weight of 30 tons. Uniformly inflate all tires to the pressure recommended by the manufacturer for the applicable wheel load.

C Construction

Completely compact and shape the subgrade to approximate grade. Test roll at normal walking speed under the direction of the engineer or his representative. Roll the road subgrade and base across the width of the entire roadway. Make multiple passes throughout the length of the test area. Center each pass on a proposed lane or applicable parking lane.

Excavation and backfill are paid for under other bid items.

D Measurement

The department will measure Proof Rolling by the station along the roadway centerline or reference line, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0170.101	Proof Rolling	STA

Payment is full compensation for performing the Proof Rolling and for retesting as determined by the engineer.