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Letting April 25, 2025

Notice to Bidders, Specifications and Proposal



**Contract No. 62X94
MCHENRY County
Section 2024-1052-N,C,SW,FL
Route FAP 326
Project NHPP-ITEP-BKZI(697)
District 1 Construction Funds**

Prepared by

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Checked by

(Printed by authority of the State of Illinois)



Illinois Department of Transportation

NOTICE TO BIDDERS

- 1. TIME AND PLACE OF OPENING BIDS.** Electronic bids are to be submitted to the electronic bidding system (iCX-Integrated Contractors Exchange). All bids must be submitted to the iCX system prior to 12:00 p.m. April 25, 2025 at which time the bids will be publicly opened from the iCX SecureVault.
- 2. DESCRIPTION OF WORK.** The proposed improvement is identified and advertised for bids in the Invitation for Bids as:

**Contract No. 62X94
MCHENRY County
Section 2024-1052-N,C,SW,FL
Project NHPP-ITEP-BKZI(697)
Route FAP 326
District 1 Construction Funds**

(2.25-Mile) Roadway Reconstruction including construction of three roundabouts at Lake Street, McConnell Road and Judd Street/Irving Ave., water main, sanitary and storm sewer replacement, lighting, signing, retaining walls, ADA improvements and a building demolition from US 14 to IL 120 in the City of Woodstock and Woodstock Fire Rescue District within McHenry County.

- 3. INSTRUCTIONS TO BIDDERS.** (a) This Notice, the invitation for bids, proposal and letter of award shall, together with all other documents in accordance with Article 101.09 of the Standard Specifications for Road and Bridge Construction, become part of the contract. Bidders are cautioned to read and examine carefully all documents, to make all required inspections, and to inquire or seek explanation of the same prior to submission of a bid.

(b) State law, and, if the work is to be paid wholly or in part with Federal-aid funds, Federal law requires the bidder to make various certifications as a part of the proposal and contract. By execution and submission of the proposal, the bidder makes the certification contained therein. A false or fraudulent certification shall, in addition to all other remedies provided by law, be a breach of contract and may result in termination of the contract.
- 4. AWARD CRITERIA AND REJECTION OF BIDS.** This contract will be awarded to the lowest responsive and responsible bidder considering conformity with the terms and conditions established by the Department in the rules, Invitation for Bids and contract documents. The issuance of plans and proposal forms for bidding based upon a prequalification rating shall not be the sole determinant of responsibility. The Department reserves the right to determine responsibility at the time of award, to reject any or all proposals, to re-advertise the proposed improvement, and to waive technicalities.

By Order of the
Illinois Department of Transportation

Gia Biagi,
Acting Secretary

INDEX
FOR
SUPPLEMENTAL SPECIFICATIONS
AND RECURRING SPECIAL PROVISIONS

Adopted January 1, 2025

This index contains a listing of SUPPLEMENTAL SPECIFICATIONS and frequently used RECURRING SPECIAL PROVISIONS.

ERRATA Standard Specifications for Road and Bridge Construction (Adopted 1-1-22) (Revised 1-1-25)

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RECURRING SPECIAL PROVISIONS

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STATE OF ILLINOIS

SPECIAL PROVISIONS

The following Special Provisions supplement the "Standard Specifications for Road and Bridge Construction" adopted January 1, 2022, the latest edition of the "Manual of Uniform Traffic Control Devices for Streets and Highways, the "Manual of Test Procedures for Materials" in effect on the date of invitation for bids, and the Supplemental Specifications and Recurring Special Provisions indicated on the Check Sheets included herein which apply to and govern the construction of FAP Route 326 (IL 47), Project NHPP-ITEP-BKZI(697), Section 2024-1052-N,C, SW, FL, McHenry County, Contract No. 62X94, and in case of conflict with any part or parts of said specifications, the said special provisions shall take precedence and shall govern.

FAP Route 326 (IL 47)
Project NHPP-ITEP-BKZI(697)
Section 2024-1052-N,C, SW, FL
McHenry County
Contract No. 62X94

LOCATION OF PROJECT

This proposed project is a widening and reconstruction of IL 47 which is a strategic regional arterial (sra) and a class II truck route heading north-south through the City of Woodstock (herein referred to as the "City") and unincorporated McHenry. The new four-lane divided roadway is designated as IL 47 with the reconstruction limits from Davis Rd to the south to Grove Street at the north limits. This project also includes approximately 550' of resurfacing south of Davis Rd. The gross length of the project is 11,989.33 feet. There are no reconstruction improvements within the Union Pacific Railroad right-of-way (omission Sta. 130+00.00 to Sta. 137+17.67). The net length of the project is 11,871.66 feet.

DESCRIPTION OF PROJECT

The work included in this project consists of roadway widening and reconstruction of IL 47 with three roundabouts at Lake Street, McConnell Road and Judd Street/Irving Avenue. The proposed roadway will provide two lanes in each direction separated by an 18-foot raised median to separate the travel direction and a closed drainage system throughout the limits of this roadway section. Other proposed improvements include pavement resurfacing, side roads reconstruction, shared use path construction, retaining wall construction, erosion control and protection, utility relocation of existing storm sewers, sanitary sewer, water main, and existing ditches, special waste excavation, earth excavation and embankment, removal of existing improvements, miscellaneous pipe culverts and storm sewers, pavements, pavement marking and signage, overhead sign structures, streetscape enhancements, roadway lighting, traffic signal, traffic

control and protection, and all incidental and collateral work necessary to complete the improvements as shown on the Plans and as described herein.

MAINTENANCE OF ROADWAYS (D1)

Effective: September 30, 1985

Revised: November 1, 1996

Beginning on the date that work begins on this project, the Contractor shall assume responsibility for normal maintenance of all existing roadways within the limits of the improvement. This normal maintenance shall include all repair work deemed necessary by the Engineer, but shall not include snow removal operations. Traffic control and protection for maintenance of roadways will be provided by the Contractor as required by the Engineer.

If items of work have not been provided in the contract, or otherwise specified for payment, such items, including the accompanying traffic control and protection required by the Engineer, will be paid for in accordance with Article 109.04 of the Standard Specifications.

PUBLIC CONVENIENCE AND SAFETY (D1)

Effective: May 1, 2012

Revised: July 15, 2012

Add the following to the end of the fourth paragraph of Article 107.09:

“If the holiday is on a Saturday or Sunday, and is legally observed on a Friday or Monday, the length of Holiday Period for Monday or Friday shall apply.”

Add the following sentence after the Holiday Period table in the fourth paragraph of Article 107.09:

“The length of Holiday Period for Thanksgiving shall be from 5:00 AM the Wednesday prior to 11:59 PM the Sunday after”

Delete the fifth paragraph of Article 107.09 of the Standard Specifications:

“On weekends, excluding holidays, roadways with Average Daily Traffic of 25,000 or greater, all lanes shall be open to traffic from 3:00 P.M. Friday to midnight Sunday except where structure construction or major rehabilitation makes it impractical.”

PROSECUTION OF WORK

Add the following to Article 108.03 of the Standard Specifications as follows:

"The Contractor will not be allowed to proceed with construction operations until April 1, 2026. The Engineer's written approval shall be obtained by the Contractor before proceeding with any work on this project.

Trees measuring 3 inch diameter or greater at a point of 4.5 feet above the highest ground level at the base of the tree shall only be removed or cleared between November 1 and March 30. No additional compensation or extension of time will be allowed to comply with this tree removal restriction.

Tree removal and building removal may be allowed prior to April 1, 2026 at the discretion of the Engineer."

COMPLETION PLUS WORKING DAYS (D1)

Effective: September 30, 1985

Revised: January 1, 2007

Revise Article 108.05 (b) of the Standard Specifications as follows:

"When a completion date plus working days is specified, the Contractor shall complete all contract items and safely open all roadways to traffic by 11:59 PM on, **October 31, 2028**, except as specified herein.

The Contractor will be allowed to complete all clean-up work and punch list items within **15** working days after the completion date for opening the roadway to traffic. Under extenuating circumstances the Engineer may direct that certain items of work, not affecting the safe opening of the roadway to traffic, may be completed within the working days allowed for clean up work and punch list items. Temporary lane closures for this work may be allowed at the discretion of the Engineer.

Article 108.09 or the Special Provision for "Failure to Complete the Work on Time", if included in this contract, shall apply to both the completion date and the number of working days."

STATUS OF UTILITIES (D1)

Effective: June 1, 2016

Revised: April 1, 2025

Utility companies and/or municipal owners located within the construction limits of this project have provided the following information regarding their facilities and the proposed improvements. The tables below contain a description of specific conflicts to be resolved and/or facilities which will require some action on the part of the Department's contractor to proceed with work. Each table entry includes an identification of the action necessary and, if applicable, the estimated duration required for the resolution.

Utilities To Be Adjusted: Conflicts noted below have been identified by following the suggested staging plan included in the contract. The company has been notified of all conflicts and will be

required to obtain the necessary permits to complete their work; in some instances, resolution will be a function of the construction staging. The responsible agency must relocate, or complete new installations as noted below; this work has been deemed necessary to be complete for the Department's contractor to then work in the stage under which the item has been listed.

Pre-Stage

| STAGE / LOCATION | TYPE | DESCRIPTION | RESPONSIBLE AGENCY | DURATION OF TIME |
|---|------------------------|--|--------------------|------------------|
| IL47 Sta. 94+00 to Sta. 208+08.64 (LT & RT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer and widened roadway | ComEd | ___ days |
| IL 47 Sta. 114+93 (LT & RT); Sta. 138+54 to Sta.140+67 (RT) | Underground Electric | Existing utilities conflict with proposed improvements | ComEd | ___ days |
| Southview Sta. 205+43 to Sta. 207+70 (RT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer and widened roadway | ComEd | ___ days |
| Lake Ave Sta. 172+02 to Sta. 183+30 (LT & RT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer, water main, and widened roadway | ComEd | ___ days |
| Lake Ave Sta. 172+80 to Sta. 180+82 (RT) | Underground Electric | Existing utilities conflict with proposed improvements | ComEd | ___ days |
| McConnell Rd Sta. 137+50 to Sta. 140+45 (LT & RT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer and water main | ComEd | ___ days |
| Country Club Rd/South St Sta. 111+87 to Sta. 116+20 (LT & RT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer and widened roadway | ComEd | ___ days |
| Country Club Rd/South St Sta. 114+05 to Sta. 116+10 (LT) | Underground Electric | Existing utilities conflict with proposed improvements | ComEd | ___ days |
| Judd St Sta. 108+98 to Sta. 111+84 (RT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer and widened roadway | ComEd | ___ days |

FAP ROUTE 326 (IL 47)
PROJECT NHPP-ITEP-BKZI(697)
SECTION 2024-1052-N,C, SW, FL
MCHENRY COUNTY
CONTRACT NO. 62X94

| | | | | |
|--|--|--|-------|---------|
| Irving Ave Sta. 201+23 to Sta. 203+51 (LT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer and widened roadway | ComEd | __ days |
| IL120 Sta. 63+21 to Sta. 71+47 (RT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer and widened roadway | ComEd | __ days |
| IL47 Sta. 94+00 to Sta. 208+08.64 (LT & RT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer and widened roadway | AT&T | __ days |
| IL47 Sta. 93+60 to Sta. 96+75 (LT); Sta. 105+80 to Sta. 106+75 (LT & RT); Sta. 108+64(RT); Sta. 110+70 to Sta. 113+60 (LT); Sta. 111+85 (LT & RT); Sta. 111+88 to Sta. 113+57(RT); Sta. 122+40(RT); Sta. 130+30 to Sta. 135+90(RT); Sta. 160+00 (LT & RT) | Underground Telephone Fiber Optic / copper cable, manholes, handholes, and spice boxes | Existing utilities conflict with proposed improvements | AT&T | __ days |
| Southview Sta. 205+43 to Sta. 207+70 (RT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer and widened roadway | AT&T | __ days |
| Lake Ave Sta. 172+02 to Sta. 183+30 (LT & RT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer, water main, and widened roadway | AT&T | __ days |
| Lake Ave Sta. 179+05 to Sta. 182+45 (LT& RT) | Underground Telephone | Existing utilities conflict with proposed improvements | AT&T | __ days |
| McConnell Rd Sta. 137+50 to Sta. 140+45 (LT & RT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer and water main | AT&T | __ days |

FAP ROUTE 326 (IL 47)
PROJECT NHPP-ITEP-BKZI(697)
SECTION 2024-1052-N,C, SW, FL
MCHENRY COUNTY
CONTRACT NO. 62X94

| | | | | |
|---|------------------------------------|--|---------|----------|
| Country Club Rd/South St Sta. 111+87 to Sta. 116+20 (LT & RT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer and widened roadway | AT&T | ___ days |
| Judd St Sta. 108+98 to Sta. 111+84 (RT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer and widened roadway | AT&T | ___ days |
| Irving Ave Sta. 201+23 to Sta. 203+51 (LT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer and widened roadway | AT&T | ___ days |
| IL120 Sta. 63+21 to Sta. 71+47 (RT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer and widened roadway | AT&T | ___ days |
| IL47 Sta. 94+00 to Sta. 208+08.64 (LT & RT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer and widened roadway | Comcast | ___ days |
| IL 47 Sta. 102+19 to Sta. 106+05 (LT); Sta. 112+00 (LT & RT); Sta. 116+32(RT); Sta. 122+35 to Sta. 122+45 (RT) | Underground Fiber Optic & Cable TV | Existing utilities with proposed improvements | Comcast | ___ days |
| Southview Sta. 205+43 to Sta. 207+70 (RT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer and widened roadway | Comcast | ___ days |
| Lake Ave Sta. 172+02 to Sta. 183+30 (LT & RT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer, water main, and widened roadway | Comcast | ___ days |
| McConnell Rd Sta. 137+50 to Sta. 140+45 (LT & RT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer and water main | Comcast | ___ days |
| Country Club Rd/South St Sta. 111+87 to Sta. 116+20 (LT & RT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer and widened roadway | Comcast | ___ days |

FAP ROUTE 326 (IL 47)
PROJECT NHPP-ITEP-BKZI(697)
SECTION 2024-1052-N,C, SW, FL
MCHENRY COUNTY
CONTRACT NO. 62X94

| | | | | |
|--|----------------------------|--|------------|----------|
| Judd St Sta. 108+98 to Sta. 111+84 (RT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer and widened roadway | Comcast | ___ days |
| Irving Ave Sta. 201+23 to Sta. 203+51 (LT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer and widened roadway | Comcast | ___ days |
| IL120 Sta. 63+21 to Sta. 71+47 (RT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer and widened roadway | Comcast | ___ days |
| IL47 Sta. 94+00 to Sta. 208+08.64 (LT & RT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer and widened roadway | Everstream | ___ days |
| IL 47 Sta. 94+60 to Sta. 99+00 (RT); Sta.100+55 to Sta. 100+90(RT); Sta. 106+15 to Sta. 115+42(RT); Sta. 129+02 (LT & RT); Sta. 129+02 to Sta. 133+22(LT); Sta. 137+56 to Sta. 144+45 (LT & RT); Sta. 183+13 to Sta. 186+55 (RT & LT); Sta. 190+76 (LT & RT) | Underground Fiber Optic | Existing utilities conflict with proposed improvements | Everstream | ___ days |
| Southview Sta. 205+43 to Sta. 207+70 (RT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer and widened roadway | Everstream | ___ days |
| Lake Ave Sta. 172+02 to Sta. 183+30 (LT & RT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer, water main, and widened roadway | Everstream | ___ days |
| McConnell Rd Sta. 137+50 to Sta. 140+45 (LT & RT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer and water main | Everstream | ___ days |

FAP ROUTE 326 (IL 47)
PROJECT NHPP-ITEP-BKZI(697)
SECTION 2024-1052-N,C, SW, FL
MCHENRY COUNTY
CONTRACT NO. 62X94

| | | | | |
|---|------------------------------------|---|------------------------|----------|
| Country Club Rd/South St Sta. 111+87 to Sta. 116+20 (LT & RT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer and widened roadway | Everstream | ___ days |
| Judd St Sta. 108+98 to Sta. 111+84 (RT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer and widened roadway | Everstream | ___ days |
| Irving Ave Sta. 201+23 to Sta. 203+51 (LT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer and widened roadway | Everstream | ___ days |
| IL120 Sta. 63+21 to Sta. 71+47 (RT) | Aerial Lines and Poles | Poles in conflict with proposed storm sewer and widened roadway | Everstream | ___ days |
| Lake Ave Sta. 167+77 to 183+50 (RT) | Underground Fiber Optic | Existing utilities conflict with proposed improvements | MCI/Verizon Business | ___ days |
| IL 47 Sta. 93+00 to Sta. 94+00 (RT); Sta. 105+50 to Sta. 138+75(RT); | Underground Fiber Optic | Existing utilities conflict with proposed improvements | Midwest Networks Fiber | ___ days |
| McConnell Rd Sta. 138+50 to Sta. 140+17 (RT) | Underground Fiber Optic | Existing utilities conflict with proposed improvements | Midwest Networks Fiber | ___ days |
| South St/County Club Rd Sta. 112+50 to 117+25 (RT) | Underground Fiber Optic | Existing utilities conflict with proposed improvements | i3 Broadband | ___ days |
| IL47 Sta. 208+55 (LT & Grove Street) to Sta. 210+35 (RT) | Underground Fiber Optic | Existing utilities conflict with proposed storm sewer, sanitary sewer, and water main | City of Woodstock | ___ days |
| Lake Ave Sta. 169+25 to Sta. 183+20 (RT) | Underground Fiber Optic | Existing utilities conflict with proposed improvements | City of Woodstock | ___ days |
| IL 47 Sta. 131+00 to Sta. 182+15 (LT & RT) | High Pressure Underground Gas Line | Existing utilities conflict with proposed improvements | Nicor Gas | ___ days |

FAP ROUTE 326 (IL 47)
PROJECT NHPP-ITEP-BKZI(697)
SECTION 2024-1052-N,C, SW, FL
MCHENRY COUNTY
CONTRACT NO. 62X94

| | | | | |
|---|--|---|-----------|----------|
| IL 47 Sta. 91+00 to Sta. 131+00 (LT & RT); Sta. 182+15 to Sta. 209+00 (LT & RT) | Underground Gas Line | Existing utilities conflict with proposed improvements | Nicor Gas | ___ days |
| Lake Ave Sta. 178+79 to Sta. 183+20 (LT & RT) | High Pressure Underground Gas Line | Existing utilities conflict with proposed improvements | Nicor Gas | ___ days |
| Lake Ave Sta. 169+43 to Sta. 178+79 (LT & RT) | Underground Gas Line | Existing utilities conflict with proposed improvements | Nicor Gas | ___ days |
| McConnell Rd Sta. 138+50 to Sta. 142+60 (LT & RT) | High Pressure Underground Gas Line | Existing utilities conflict with proposed improvements | Nicor Gas | ___ days |
| McConnell Rd Sta. 137+30 to Sta. 142+60 (LT & RT) | Underground Gas Line | Existing utilities conflict with proposed improvements | Nicor Gas | ___ days |
| South St/County Club Rd Sta. 110+90 to Sta. 118+20 (LT & RT) | Underground Gas Line | Existing utilities conflict with proposed improvements | Nicor Gas | ___ days |
| Irving Ave Sta. 200+25 to Sta. 204+50 (RT) | High Pressure Underground Gas Line | Existing utilities conflict with proposed improvements | Nicor Gas | ___ days |
| IL120 Sta. 62+60 to Sta. 72+60 (LT & RT) | Underground Gas Line | Existing utilities conflict with proposed improvements | Nicor Gas | ___ days |

The following contact information is what was used during the preparation of the plans as provided by the Agency/Company responsible for resolution of the conflict.

| Agency/Company Responsible to Resolve Conflict | Name of contact | Phone | E-mail address |
|--|------------------------------------|-------------------------------|--|
| AT&T | Alexander Bryant; Jamie A. Gwin | 630-573-6456; 630-573-5423 | ab8652@att.com ; jg8128@atty.com |
| City of Woodstock | Chris Tiedt | 815-338-6118 | ctiedt@woodstockil.gov |
| Comcast | Louis Sarno; Nate Williams | 224-465-0012; 224-355-7012 | Louis_Sarno2@comcast.com ; Nate_Williams@comcast.com |

| | | | |
|------------------------|---|-------------------------------|--|
| ComEd | Deji Akosile; Rebecca Lesnick | 779-231-0781; 630-534-0622 | deji.akosile@comed.com ; rebecca.lesnick@comed.com |
| Everstream | Gino Esposito | 224-423-2909 | gesposito@everstream.net |
| G4S Technology | Douglas Gone | | Douglas.gones@usa.g4s.com |
| i3 Broadband | JD Spets | 309-670-5217 | john.spets@i3broadband.com |
| Midwest Fiber Networks | Cory Schmuki | 414-459-3561 | cschmuki@midwestfibernetworks.com |
| Nicor Gas | Charles "Chip" Parrott; Karey Johnson | 630-388-3319; 630-388-2923 | cparrot@southernco.com ; karejohn@southernco.com |
| MCI/Verizon Business | Joe B. Chaney Jr. | 312-617-2131 | Joe.Chaney@Verizon.com |

Utilities To Be Watched and Protected: The areas of concern noted below have been identified by following the suggested staging plan included for the contract. The information provided is not a comprehensive list of all remaining utilities, but those which during coordination were identified as ones which might require the Department's contractor to take into consideration when making the determination of the means and methods that would be required to construct the proposed improvement. In some instances, the contractor will be responsible to notify the owner in advance of the work to take place so necessary staffing on the owner's part can be secured.

Pre-Stage

| STAGE / LOCATION | TYPE | DESCRIPTION | RESPONSIBLE AGENCY |
|------------------------|--|---|--------------------|
| Limits of Construction | Aerial and Underground Electric | Existing facilities within the limits of construction to be protected from damage by the Contractor. If excavation will be performed near poles or large equipment will be used near existing overhead lines, facility protection may be required. If facility protection is required, please call 1-800-334-7661 to create a ticket for line and/or pole protection as soon as possible. | ComEd |
| Limits of Construction | High Pressure Underground Gas Line | Facilities within the limits of construction to be protected by the Contractor | Nicor Gas |
| Limits of Construction | Underground Gas Line | Facilities within the limits of construction to be protected by the Contractor | Nicor Gas |

| | | | |
|-------------------------|---|--|------------------------------|
| | Aerial and Underground Telephone Fiber Optic | Facilities within the limits of construction to be protected by the Contractor | AT&T |
| | Aerial and Underground Fiber Optic & Cable TV | Facilities within the limits of construction to be protected by the Contractor | Comcast |
| | Aerial Fiber Optic | Facilities within the limits of construction to be protected by the Contractor | Everstream |
| | Underground Fiber Optic | Facilities within the limits of construction to be protected by the Contractor | MCI/Verizon Business |
| | Underground Fiber Optic | Facilities within the limits of construction to be protected by the Contractor | Midwest Fiber Networks |
| | Underground Fiber Optic | Facilities within the limits of construction to be protected by the Contractor | i3 Broadband |
| | Underground Fiber Optic | Facilities within the limits of construction to be protected by the Contractor | City of Woodstock |
| IL 47 Sta. 148+85 RT | Sanitary Lift Station | Existing lift station to be protected from damage by the Contractor | Privately Owned (unknown) |

The following contact information is what was used during the preparation of the plans as provided by the owner of the facility.

| Agency/Company Responsible to Resolve Conflict | Name of contact | Phone | E-mail address |
|--|---|-------------------------------|--|
| AT&T | Alexander Bryant; Jamie A. Gwin | 630-573-6456; 630-573-5423 | ab8652@att.com ; jg8128@att.com |
| City of Woodstock | Chris Tiedt | 815-338-6118 | ctiedt@woodstockil.gov |
| Comcast | Louis Sarno; Nate Williams | 224-465-0012; 224-355-7012 | Louis_Sarno2@comcast.com ; Nate_Williams@comcast.com |
| ComEd | Deji Akosile; Rebecca Lesnick | 779-231-0781; 630-534-0622 | deji.akosile@comed.com ; rebecca.lesnick@comed.com |
| Everstream | Gino Esposito | 224-423-2909 | gesposito@everstream.net |
| i3 Broadband | JD Spets | 309-670-5217 | john.spets@i3broadband.com |
| Midwest Fiber Networks | Cory Schmuki | 414-459-3561 | cschmuki@midwestfibernetworks.com |
| Nicor Gas | Charles "Chip" Parrott; Karey Johnson | 630-388-3319; 630-388-2923 | cparrot@southernco.com ; karejohn@southernco.com |
| MCI/Verizon Business | Joe B. Chaney Jr. | 312-617-2131 | Joe.Chaney@Verizon.com |

The above represents the best information available to the Department and is included for the convenience of the bidder. The days required for conflict resolution should be considered in the bid as this information has also been factored into the timeline identified for the project when setting the completion date. The applicable portions of the Standard Specifications for Road and Bridge Construction shall apply.

Estimated duration of time provided above for the first conflicts identified will begin on the date of the executed contract regardless of the status of the utility relocations. The responsible agencies will be working toward resolving subsequent conflicts in conjunction with contractor activities in the number of days noted.

The estimated relocation duration must be part of the progress schedule submitted by the contractor. A utility kickoff meeting will be scheduled between the Department, the Department's contractor, and the utility companies when necessary.

The contractor is responsible for contacting JULIE (or DIGGER within the City of Chicago) prior to any excavation work. Please note that IDOT electrical facilities are not part of the one-call locating services, such as JULIE or DIGGER.

If the contract requires the services of an electrical contractor, it is the contractor's responsibility, at their own expense, to locate existing IDOT electrical facilities before commencing work. For contracts that do not require an electrical contractor, the contractor may request one free locate of IDOT electrical facilities by contacting the Department's Electrical Maintenance Contractor. Additional locate requests will be at the contractor's expense.

The Department's contractor is responsible for contacting JULIE or DIGGER within city of Chicago prior to all excavation work. State Electrical Contractor shall be notified 72 hours in advance of construction to locate IDOT underground electrical facilities at 773-287-7600 or dispatch@meade100.com to arrange for the locating of underground electrical facilities.

Please note, the marking of underground facilities does not absolve the contractor of their responsibility to repair or replace any facilities damaged during construction at their expense.

ENGINEER'S FIELD OFFICE TYPE A (SPECIAL) (D1)

Effective: December 1, 2011

Revised: May 1, 2013

Revise the first paragraph of Article 670.02 to read:

670.02 Engineer's Field Office Type A (Special). Type A (Special) field offices shall have a ceiling height of not less than 7 feet and a floor space of not less than 3000 square feet with a minimum of two separate offices. The office shall also have a separate storage room capable of being locked for the storage of the nuclear measuring devices. The office shall be provided with sufficient heat, natural and artificial light, and air conditioning. Doors and windows shall be equipped with locks approved by the Engineer.

Revise the first sentence of the second paragraph of Article 670.02 to read:

An electronic security system that will respond to any breach of exterior doors and windows with an on-site alarm shall be provided.

Revise the last sentence of the third paragraph of Article 670.02 to read:

Adequate all-weather parking space shall be available to accommodate a minimum of twelve vehicles.

Revise the fifth paragraph of Article 670.02 to read:

Sanitary facilities shall include hot and cold potable running water, lavatory and toilet as an integral part of the office where available. Solid waste disposal consisting of seven waste baskets and an outside trash container of sufficient size to accommodate a weekly provided pick-up service. A weekly cleaning service for the office shall be provided.

Revise subparagraph (a) of Article 670.02 to read:

(a) Twelve desks with minimum working surface 42 inch x 30 inch each and twelve non-folding chairs with upholstered seats and backs.

Revise the first sentence of subparagraph (c) of Article 670.02 to read:

(c) Two four-post drafting tables with minimum top size of 37-½ inch x 48 inch.

Revise subparagraph (d) of Article 670.02 to read:

(d) Eight free standing four-drawer legal size file cabinets with lock and an underwriters' laboratories insulated file device 350 degrees one hour rating.

Revise subparagraph (e) of Article 670.02 to read:

(e) Twenty folding chairs and two conference tables with minimum top size of 44 inch x 96 inch.

Revise subparagraph (h) of Article 670.02 to read:

(h) Three electric desk type tape printing calculator and two pocket scientific notation calculators with a 1000 hour battery life or with a portable recharger.

Revise subparagraph (i)(2) of Article 670.02 to read:

(i)(2) Telephones lines. Five separate telephone lines including one line for the fax machine, and two lines for the exclusive use of the Engineer. All telephone lines shall include long distance service and all labor and materials necessary to install the phone lines at the locations directed by the Engineer. The TELCOM company shall configure ROLL/HUNT features as specified by the engineer.

Revise subparagraph (j) of Article 670.02 to read:

- (j) Two plain paper network multi-function printer/copier/scanner machines capable of reproducing prints up to 11 inch x 17 inch within automatic feed tray capable of sorting 30 sheets of paper. Letter size and 11 inch x 17 inch paper shall be provided. The contractor shall provide the multi-function machines with IT support for setup and maintenance.

Revise subparagraph (k) of Article 670.02 to read:

- (k) One plain paper fax machine including maintenance and supplies.

Revise subparagraph (l) of Article 670.02 to read:

- (l) Six four-line telephones, with touch tone, where available, and two digital answering machines, for exclusive use by the Engineer.

Revise subparagraph (m) of Article 670.02 to read:

- (m) One electric water cooler dispenser including water service.

Add the following subparagraphs to Article 670.02:

- (s) One 4 foot x 6 foot chalkboard or dry erase board.
- (t) One 4 foot x 6 foot framed cork board.

Add the following to Article 670.07 Basis of Payment.

The building or buildings, fully equipped, will be paid for at the contract unit price per CALENDAR MONTH or fraction thereof for ENGINEER'S FIELD OFFICE, TYPE A (SPECIAL).

REMOVAL AND DISPOSAL OF REGULATED SUBSTANCES (PROJECT SPECIFIC)

Description. This work shall consist of the removal and disposal of regulated substances according to Section 669 of the Standard Specifications as revised below.

Contract Specific Sites. The excavated soil and groundwater within the areas listed below shall be managed as either "uncontaminated soil", hazardous waste, special waste or non-special waste. For stationing, the lateral distance is measured from centerline and the farthest distance is the offset distance or construction limit, whichever is less.

Soil Disposal Analysis. When the waste material requires sampling for landfill disposal acceptance, the Contractor shall secure a written list of the specific analytical parameters and analytical methods required by the landfill. The Contractor shall collect and analyze the required number of samples for the parameters required by the landfill using the appropriate analytical procedures. A copy of the required parameters and analytical methods (from landfill email or on landfill letterhead) shall be provided as Attachment 4A of the BDE 2733 (Regulated Substances Final Construction Report). The price shall include all sampling materials and effort necessary for

collection and management of the samples, including transportation of samples from the job site to the laboratory. The Contractor shall be responsible for determining the specific disposal facilities to be utilized; and collect and analyze any samples required for disposal facility acceptance using a NELAP certified analytical laboratory registered with the State of Illinois.

Site 2279V2-87: Prairie Homes of Hearthstone - 312-316 Christian Way, Woodstock, McHenry County

- Station 209+85 to Station 211+05 (CL IL 47), from 0 to 55 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-88: Residence - 738 N. Seminary Avenue, Woodstock, McHenry County

- Station 208+70 to Station 209+85 (CL IL 47), from 0 to 75 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-89: Residence - 734 N. Seminary Avenue, Woodstock, McHenry County

- Station 207+65 to Station 208+70 (CL IL 47), from 0 to 75 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-90: Residence - 733 N. Seminary Avenue, Woodstock, McHenry County

- Station 206+70 to Station 207+75 (CL IL 47), from 0 to 50 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-91: Residence - 725 N. Seminary Avenue, Woodstock, McHenry County

- Station 206+15 to Station 206+70 (CL IL 47), from 0 to 55 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-92: Residence - 721 N. Seminary Avenue, Woodstock, McHenry County

- Station 205+60 to Station 206+15 (CL IL 47), from 0 to 55 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-93: Residence - 715 N. Seminary Avenue, Woodstock, McHenry County

- Station 205+00 to Station 205+60 (CL IL 47), from 0 to 55 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-94: Residence - 711 N. Seminary Avenue, Woodstock, McHenry County

- Station 204+45 to Station 205+00 (CL IL 47), from 0 to 50 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-95: Residence - 635 N. Seminary Avenue, Woodstock, McHenry County

- Station 204+00 to Station 204+45 (CL IL 47), from 0 to 50 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-96: Residence - 629 N. Seminary Avenue, Woodstock, McHenry County

- Station 203+90 to Station 203+90 (CL IL 47), from 0 to 55 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene and Manganese.

Site 2279V2-97: Residence - 621 N. Seminary Avenue, Woodstock, McHenry County

- Station 202+65 to Station 203+30 (CL IL 47), from 0 to 50 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene and Manganese.

Site 2279V2-98: Residence - 613 N. Seminary Avenue, Woodstock, McHenry County

- Station 202+00 to Station 202+65 (CL IL 47), from 0 to 55 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene and Manganese.

Site 2279V2-99: Residence - 605 N. Seminary Avenue, Woodstock, McHenry County

- Station 200+85 to Station 202+00 (CL IL 47), from 0 to 140 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-101: Crossroads Care Center - 309 McHenry Avenue, Woodstock, McHenry County

- Station 69+00 to Station 70+00 (CL IL 120), from 0 to 45 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.
- Station 70+00 to Station 72+50 (CL IL 120), from 0 to 45 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.
- Station 200+85 to Station 202+00 (CL IL 47), from 0 to 120 feet RT between CL IL 47 and CL IL 120. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.
- Station 202+00 to Station 206+00 (CL IL 47), from 0 to 75 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article

669.05(a)(1). Contaminants of concern sampling parameters: Benzo(a)pyrene, Lead and Manganese.

- Station 206+00 to Station 207+65 (CL IL 47), from 0 to 60 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-102: Success Realty Partners - 245 McHenry Avenue, Woodstock, McHenry County

- Station 64+85 to Station 66+35 (CL IL 120), from 0 to 40 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.
- Station 66+35 to Station 67+55 (CL IL 120), from 0 to 95 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-103: Church - 238 McHenry Avenue, Woodstock, McHenry County

- Station 65+50 to Station 66+70 (CL IL 120), from 0 to 50 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene, Dibenzo(a,h)anthracene and Manganese.
- Station 65+50 to Station 66+70 (CL IL 120), from 0 to 50 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene, Dibenzo(a,h)anthracene and Manganese.

Site 2279V2-105: Residential Building - 229-231 McHenry Avenue, Woodstock, McHenry County

- Station 63+90 to Station 64+50 (CL IL 120), from 0 to 40 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Manganese.
- Station 64+50 to Station 64+85 (CL IL 120), from 0 to 40 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-106: Residence - 226 McHenry Avenue, Woodstock, McHenry County

- Station 63+15 to Station 64+50 (CL IL 120), from 0 to 40 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Carbazole, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene and Manganese.
- Station 64+50 to Station 65+50 (CL IL 120), from 0 to 35 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene, Dibenzo(a,h)anthracene and Manganese.

Site 2279V2-107: Residence - 214 McHenry Avenue, Woodstock, McHenry County

- Station 62+60 to Station 63+15 (CL IL 120), from 0 to 35 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Carbazole, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene and Manganese.

Site 2279V2-110: Residence - 225 McHenry Avenue, Woodstock, McHenry County

- Station 63+20 to Station 63+90 (CL IL 120), from 0 to 40 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-111: Residence - 504 N. Madison Street, Woodstock, McHenry County

- Station 62+60 to Station 63+20 (CL IL 120), from 0 to 40 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-125: Residence - 338 McHenry Avenue, Woodstock, McHenry County

- Station 70+80 to Station 72+50 (CL IL 120), from 0 to 45 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-126: Residence - 334 McHenry Avenue, Woodstock, McHenry County

- Station 70+20 to Station 70+80 (CL IL 120), from 0 to 45 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-127: Residence - 326 McHenry Avenue, Woodstock, McHenry County

- Station 69+55 to Station 70+00 (CL IL 120), from 0 to 45 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.
- Station 70+00 to Station 70+20 (CL IL 120), from 0 to 45 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-128: Residence - 316 McHenry Avenue, Woodstock, McHenry County

- Station 68+85 to Station 69+55 (CL IL 120), from 0 to 45 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-129: Residence - 310 McHenry Avenue, Woodstock, McHenry County

- Station 68+10 to Station 68+85 (CL IL 120), from 0 to 60 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-130: Residence - 302 McHenry Avenue, Woodstock, McHenry County

- Station 199+35 to Station 200+85 (CL IL 47), from 0 to 80 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-131: Residence - 524 N. Eastwood Drive, Woodstock, McHenry County

- Station 198+80 to Station 199+10 (CL IL 47), from 0 to 70 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.
- Station 199+10 to Station 199+35 (CL IL 47), from 0 to 65 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-132: Residence - 520 N. Eastwood Drive, Woodstock, McHenry County

- Station 198+35 to Station 198+80 (CL IL 47), from 0 to 75 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-134: Residence - 502 N. Seminary Avenue, Woodstock, McHenry County

- Station 198+20 to Station 199+00 (CL IL 47), from 0 to 45 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene, Iron, and Manganese.
- Station 199+00 to Station 200+85 (CL IL 47), from 0 to 80 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-143: Residence - 516 N. Seminary Avenue, Woodstock, McHenry County

- Station 197+20 to Station 198+20 (CL IL 47), from 0 to 95 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene, Iron, and Manganese.

Site 2279V2-144: Residence - 507 N. Eastwood Drive, Woodstock, McHenry County

- Station 196+900 to Station 197+20 (CL IL 47), from 0 to 65 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene, Iron and Manganese.

Site 2279V2-145: Residence - 503 N. Eastwood Drive, Woodstock, McHenry County

- Station 196+30 to Station 196+90 (CL IL 47), from 0 to 100 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-147: Residence - 479 N. Eastwood Drive, Woodstock, McHenry County

- Station 195+70 to Station 196+30 (CL IL 47), from 0 to 140 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article

669.05(a)(1). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-148: Residence - 473 N. Eastwood Drive, Woodstock, McHenry County

- Station 192+95 to Station 195+00 (CL IL 47), from 0 to 55 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.
- Station 195+00 to Station 195+70 (CL IL 47), from 0 to 65 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-149: Residence - 410 Center Street, Woodstock, McHenry County

- Station 195+35 to Station 196+15 (CL IL 47), from 0 to 95 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-150: Residence - 404 Center Street, Woodstock, McHenry County

- Station 196+15 to Station 197+10 (CL IL 47), from 0 to 50 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.
- Station 197+10 to Station 198+35 (CL IL 47), from 0 to 100 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-151: Residence - 406 N. Eastwood Drive, Woodstock, McHenry County

- Station 195+00 to Station 195+35 (CL IL 47), from 0 to 60 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-152: A. Hartlett & Son - 406 N. Eastwood Drive, Woodstock, McHenry County

- Station 191+80 to Station 195+00 (CL IL 47), from 0 to 130 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Lead and Manganese.

Site 2279V2-153: Emerson Lofts - 230-320 N. Seminary Avenue, Woodstock, McHenry County

- Station 192+40 to Station 192+95 (CL IL 47), from 0 to 60 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-154: Vacant Lot - 300 block of N. Eastwood Drive, Woodstock, McHenry County

- Station 189+90 to Station 191+80 (CL IL 47), from 0 to 100 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene.

Site 2279V2-155: Botts Welding and Truck Services - 335 N. Eastwood Drive, Woodstock, McHenry County

- Station 186+70 to Station 188+25 (CL IL 47), from 0 to 40 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene, Lead and Manganese.
- Station 188+25 to Station 190+00 (CL IL 47), from 0 to 40 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Benzo(a)pyrene, Lead and Manganese.
- Station 190+00 to Station 191+80 (CL IL 47), from 0 to 60 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Manganese.
- Station 191+80 to Station 192+40 (CL IL 47), from 0 to 60 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-162: Botts Parts Department - 315 N. Eastwood Drive, Woodstock, McHenry County

- Station 108+40 to Station 110+15 (CL E. Judd St.), from 0 to 105 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene, Iron, Lead and Manganese.
- Station 184+80 to Station 186+70 (CL IL 47), from 0 to 55 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene, Iron, Lead and Manganese.

Site 2279V2-163: Commercial Building - 641 E. Judd Street, Woodstock, McHenry County

- Station 110+15 to Station 111+20 (CL E. Judd St.), from 0 to 125 feet LT between CL E. Judd Street and CL IL 47. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene, Iron, Lead and Manganese.
- Station 182+05 to Station 184+80 (CL IL 47), from 0 to 95 feet LT between CL E. Judd Street and CL IL 47. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene Iron, Lead and Manganese.

Site 2279V2-164: Shopfresh Market - 330 N. Eastwood Drive, Woodstock, McHenry County

- Station 186+50 to Station 189+90 (CL IL 47), from 0 to 125 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Lead and Manganese.

Site 2279V2-165: Commercial Building - 321-331 Irving Avenue, Woodstock, McHenry County

- Station 203+55 to Station 204+60 (CL Irving Avenue), from 0 to 45 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene, Benzo(b)fluoranthene and Manganese.

Site 2279V2-166: Vacant Lot - 300 N. Eastwood Drive, Woodstock, McHenry County

- Station 182+90 to Station 185+30 (CL Irving Avenue), from 100 to 200 feet RT to CL Irving Avenue. The Engineer has determined this material meets the criteria of and shall be

managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene, Benzo(b)fluoranthene and Manganese.

- Station 182+05 to Station 182+55 (CL IL 47), from 0 to 50 feet RT between CL IL 47 and CL Irving Avenue. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.
- Station 182+55 to Station 185+30 (CL IL 47), from 0 to 100 feet RT to CL Irving Avenue. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: Benzene, Benzo(a)pyrene and Manganese.
- Station 185+30 to Station 186+50 (CL IL 47), from 0 to 125 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene, Benzo(b)fluoranthene Dibenzo(a,h)anthracene and Manganese.

At the Vacant Lot property, Benzene was detected at a concentration exceeding the TACO Tier 1 Soil Remediation Objective for the Construction Worker Inhalation exposure route in soil boring B166-4, from the sample interval 0 to 4 feet deep, as noted in the Final Preliminary Site Investigation Report for this project, submitted December 19, 2024, by Weston Solutions, Inc. Procedures shall be implemented to protect site workers and observers from hazards encountered during construction activities in locations containing contaminated materials, pursuant to Article 669 of the Standard Specifications for Road and Bridge Construction manual.

Site 2279V2-170: Matrix IV, Inc. - 610 E. Judd Street, Woodstock, McHenry County

- Station 180+20 to Station 182+05 (CL IL 47), from 0 to 75 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene and Manganese.
- Station 108+70 to Station 111+10 (CL E. Judd St.), from 0 to 35 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: Manganese.
- Station 111+10 to Station 112+15 (CL E. Judd St.), from 0 to 75 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

At the Matrix IV, Inc. property, Chromium was detected at a concentration exceeding the TACO Tier 1 Soil Remediation Objective for the Construction Worker Inhalation and Ingestion exposure routes in soil boring B170-2, from the sample interval 0 to 4 feet deep, as noted in the Final Preliminary Site Investigation Report for this project, submitted December 19, 2024 by Weston Solutions, Inc. Procedures shall be implemented to protect site workers and observers from hazards encountered during construction activities in locations containing contaminated materials, pursuant to Article 669 of the Standard Specifications for Road and Bridge Construction manual.

Site 2272V2-171: Vacant Land - 300 block of Irving Avenue, Woodstock, McHenry County

- Station 202+80 to Station 204+25 (CL Irving Avenue), from 0 to 25 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Benzo(a)pyrene, Benzo(b)fluoranthene and Dibenzo(a,h)anthracene.

Site 2279V2-172: Wendy's - 120 N. Eastwood Drive, Woodstock, McHenry County

- Station 180+40 to Station 181+00 (CL IL 47), from 0 to 65 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: Manganese.
- Station 181+00 to Station 182+05 (CL IL 47), from 0 to 65 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Benzo(b)fluoranthene, Benzo(a)anthracene, Benzo(a)pyrene, Dibenzo(a,h)anthracene and Manganese.
- Station 200+00 to Station 201+15 (CL Irving Avenue), from 0 to 25 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.
- Station 201+15 to Station 202+80 (CL Irving Avenue), from 0 to 125 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-173: Shell Gasoline Station - 110 N. Eastwood Drive, Woodstock, McHenry County

- Station 179+45 to Station 180+40 (CL IL 47), from 0 to 65 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene and Manganese.

Site 2279V2-174: Commercial Building - 80-108 N. Eastwood Drive, Woodstock, McHenry County

- Station 175+60 to Station 176+20 (CL IL 47), from 0 to 75 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Benzo(b)fluoranthene, Benzo(a)anthracene, Benzo(a)pyrene, Dibenzo(a,h)anthracene and Manganese.
- Station 176+20 to Station 179+25 (CL IL 47), from 0 to 65 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.
- Station 179+25 to Station 179+45 (CL IL 47), from 0 to 65 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-175: Commercial Building - 150 S. Eastwood Drive, Woodstock, McHenry County

- Station 175+30 to Station 177+00 (CL IL 47), from 0 to 50 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.
- Station 177+00 to Station 179+00 (CL IL 47), from 0 to 70 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

- Station 179+00 to Station 180+20 (CL IL 47), from 0 to 55 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-176: Great Lakes Credit Union - 180 S. Eastwood Drive, Woodstock, McHenry County

- Station 172+75 to Station 173+95 (CL IL 47), from 0 to 55 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Iron.
- Station 173+95 to Station 175+30 (CL IL 47), from 0 to 55 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene, Iron and Manganese.

Site 2279V2-177: Commercial Building - 111-127 S. Eastwood Drive, Woodstock, McHenry County

- Station 174+80 to Station 175+60 (CL IL 47), from 0 to 80 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-178: Commercial Building - 129-145 S. Eastwood Drive, Woodstock, McHenry County

- Station 170+50 to Station 170+75 (CL IL 47), from 0 to 100 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.
- Station 174+30 to Station 174+80 (CL IL 47), from 0 to 80 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-179: Shell Gasoline Station - 155 S. Eastwood Drive, Woodstock, McHenry County

- Station 170+75 to Station 174+30 (CL IL 47), from 0 to 100 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-182: Chase - 200 S. Eastwood Drive, Woodstock, McHenry County

- Station 170+60 to Station 172+10 (CL IL 47), from 0 to 70 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Manganese.
- Station 172+10 to Station 172+75 (CL IL 47), from 0 to 55 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Iron and Manganese.

Site 2279V2-185: Residence - 812 E. South Street, Woodstock, McHenry County

- Station 111+00 to Station 111+60 (CL E. South St.), from 0 to 40 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-186: Residence - 816 E. South Street, Woodstock, McHenry County

- Station 111+60 to Station 112+25 (CL E. South St.), from 0 to 40 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.
- Station 112+25 to Station 112+50 (CL E. South St.), from 0 to 50 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-187: McDonalds - 250 S. Eastwood Drive, Woodstock, McHenry County

- Station 111+00 to Station 112+50 (CL E. South St.), from 0 to 100 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.
- Station 112+50 to Station 114+90 (CL E. South St.), from 0 to 70 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Manganese.
- Station 168+00 to Station 168+50 (CL IL 47), from 0 to 60 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Manganese.
- Station 168+50 to Station 170+60 (CL IL 47), from 0 to 65 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-188: BP Gasoline Station - 870 E. South Street, Woodstock, McHenry County

- Station 165+25 to Station 167+15 (CL IL 47), from 0 to 75 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: Benzene, Benzo(a)pyrene, Manganese.
- Station 112+50 to Station 113+15 (CL E. South St.), from 0 to 50 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Manganese.
- Station 113+15 to Station 114+35 (CL E. South St.), from 0 to 50 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.
- Station 114+35 to Station 114+90 (CL E. South St.), from 0 to 50 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: Benzene, Benzo(a)pyrene and Manganese.

Site 2279V2-189: Panera - 925 Country Club Road, Woodstock, McHenry County

- Station 114+90 to Station 116+60 (CL Country Club Rd.), from 0 to 60 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Manganese.
- Station 116+60 to Station 116+90 (CL Country Club Rd.), from 0 to 60 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

- Station 167+20 to Station 170+20 (CL IL 47), from 0 to 90 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Manganese.
- Station 170+20 to Station 170+50 (CL IL 47), from 0 to 100 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-190: Golden Eagle Community Bank of Woodstock - 975 Country Club Road, Woodstock, McHenry County

- Station 116+90 to Station 118+20 (CL Country Club Road), from 0 to 60 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-194: Walgreens - 305 S. Eastwood Drive, Woodstock, McHenry County

- Station 164+00 to Station 165+00 (CL IL 47), from 0 to 85 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.
- Station 165+00 to Station 166+50 (CL IL 47), from 0 to 105 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.
- Station 114+90 to Station 116+50 (CL Country Club Road), from 0 to 60 feet RT between CL IL 47 and CL Country Club Road. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Manganese.
- Station 116+50 to Station 118+20 (CL Country Club Road), from 0 to 70 feet RT between CL IL 47 and CL Country Club Road. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-195: Vacant Land - 322 S. Eastwood Drive, Woodstock, McHenry County

- Station 164+00 to Station 165+00 (CL IL 47), from 0 to 55 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Manganese.
- Station 165+00 to Station 165+25 (CL IL 47), from 0 to 55 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-196: Commercial Building - 335-365 S. Eastwood Drive, Woodstock, McHenry County

- Station 162+00 to Station 163+00 (CL IL 47), from 0 to 75 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.
- Station 163+00 to Station 164+00 (CL IL 47), from 0 to 85 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-197: Commercial Building - 320 S. Eastwood Drive, Woodstock, McHenry County

- Station 160+40 to Station 164+00 (CL IL 47), from 0 to 70 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Benzo(a)pyrene, Lead, Iron and Manganese.

Site 2279V2-198: Eastwood Service Center - 385 S. Eastwood Drive, Woodstock, McHenry County

- Station 161+20 to Station 162+00 (CL IL 47), from 0 to 80 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-199: Gas Cap - 401 S. Eastwood Drive, Woodstock, McHenry County

- Station 158+95 to Station 161+20 (CL IL 47), from 0 to 70 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-200: Taco Bell - 400 S. Eastwood Drive, Woodstock, McHenry County

- Station 156+90 to Station 157+75 (CL IL 47), from 0 to 70 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Iron and Manganese.
- Station 157+75 to Station 160+40 (CL IL 47), from 0 to 70 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-201: Commercial Building - 501-591 S. Eastwood Drive, Woodstock, McHenry County

- Station 156+90 to Station 158+00 (CL IL 47), from 0 to 70 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Manganese.
- Station 158+00 to Station 158+95 (CL IL 47), from 0 to 70 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Benzo(a)pyrene.

Site 2279V2-202: Tommy's Red Hots - 500 S. Eastwood Drive, Woodstock, McHenry County

- Station 154+00 to Station 156+00 (CL IL 47), from 0 to 65 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene, Lead, and Manganese.
- Station 156+00 to Station 156+90 (CL IL 47), from 0 to 55 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Iron and Manganese.

Site 2279V2-203: Advance Auto Parts - 520 S. Eastwood Drive, Woodstock, McHenry County

- Station 152+35 to Station 154+00 (CL IL 47), from 0 to 70 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Benzo(a)pyrene, Lead, and Manganese.

Site 2279V2-204: Burger King - 601 S. Eastwood Drive, Woodstock, McHenry County

- Station 155+00 to Station 156+00 (CL IL 47), from 0 to 100 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Lead.
- Station 156+00 to Station 156+90 (CL IL 47), from 0 to 100 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene.

Site 2279V2-205: Sherwin-Williams Paints - 631 S. Eastwood Drive, Woodstock, McHenry County

- Station 153+30 to Station 154+00 (CL IL 47), from 0 to 185 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Benzo(a)pyrene, Lead and Manganese.
- Station 154+00 to Station 155+00 (CL IL 47), from 0 to 100 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Lead.

Site 2279V2-208: Centerville Plaza - 651-681 S. Eastwood Drive, Woodstock, McHenry County

- Station 150+30 to Station 152+00 (CL IL 47), from 0 to 90 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.
- Station 152+00 to Station 153+30 (CL IL 47), from 0 to 195 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Benzo(a)pyrene, Lead and Manganese.

Site 2279V2-210: Eastwood Plaza - 710-750 S. Eastwood Drive, Woodstock, McHenry County

- Station 149+00 to Station 152+35 (CL IL 47), from 0 to 70 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Benzo(a)pyrene, Lead and Manganese.

Site 2279V2-211: Enterprise Rent-A-Car - 760 S. Eastwood Drive, Woodstock, McHenry County

- Station 148+35 to Station 149+00 (CL IL 47), from 0 to 60 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-212: Commercial Building - 701-717 S. Eastwood Drive, Woodstock, McHenry County

- Station 148+85 to Station 150+00 (CL IL 47), from 0 to 75 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

- Station 150+00 to Station 150+30 (CL IL 47), from 0 to 75 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese pH.

Site 2279V2-213: Woodstock Community Thrift - 780 S. Eastwood Drive, Woodstock, McHenry County

- Station 147+15 to Station 148+00 (CL IL 47), from 0 to 55 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.
- Station 148+00 to Station 148+35 (CL IL 47), from 0 to 55 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-214: Woodstock Business Center - 727-747 S. Eastwood Drive, Woodstock, McHenry County

- Station 145+65 to Station 146+75 (CL IL 47), from 0 to 60 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: Benzo(b)fluoranthene, Benzo(a)anthracene, Benzo(a)pyrene, Dibenzo(a,h)anthracene, Lead and Manganese.
- Station 146+75 to Station 148+25 (CL IL 47), from 0 to 60 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Lead and Manganese.
- Station 148+25 to Station 148+85 (CL IL 47), from 0 to 60 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-215: Commercial Building - 790-800 S. Eastwood Drive, Woodstock, McHenry County

- Station 144+70 to Station 146+00 (CL IL 47), from 0 to 75 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Manganese.
- Station 146+00 to Station 147+15 (CL IL 47), from 0 to 75 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-216: Vacant Lot - 801 S. Eastwood Drive, Woodstock, McHenry County

- Station 144+25 to Station 145+65 (CL IL 47), from 0 to 70 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: Benzo(b)fluoranthene, Arsenic, Benzo(a)anthracene, Benzo(a)pyrene, Dibenzo(a,h)anthracene, Lead and Manganese.

Site 2279V2-217: DeCraene's Service Center - 850 S. Eastwood Drive, Woodstock, McHenry County

- Station 142+40 to Station 144+70 (CL IL 47), from 0 to 70 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article

669.05(a)(1). Contaminants of concern sampling parameters: Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene and Manganese.

Site 2279V2-218: Vacant Lot - 800 block of S. Eastwood Drive, Woodstock, McHenry County

- Station 143+20 to Station 143+70 (CL IL 47), from 0 to 70 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.
- Station 143+70 to Station 144+25 (CL IL 47), from 0 to 70 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: Benzo(b)fluoranthene, Arsenic, Benzo(a)anthracene, Benzo(a)pyrene, Dibenzo(a,h)anthracene and Manganese.

Site 2279V2-219: Residence - 935 S. Eastwood Drive, Woodstock, McHenry County

- Station 142+20 to Station 143+20 (CL IL 47), from 0 to 70 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-220: Serien Manufacturing - 900 S. Eastwood Drive, Woodstock, McHenry County

- Station 141+45 to Station 142+40 (CL IL 47), from 0 to 40 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene and Manganese.

Site 2279V2-221: Strait Renovations, Inc. - 935 S. Eastwood Drive, Woodstock, McHenry County

- Station 141+00 to Station 142+20 (CL IL 47), from 0 to 70 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Arsenic and Manganese.

Site 2279V2-222: Amerimex - 950 S. Eastwood Drive, Woodstock, McHenry County

- Station 140+55 to Station 141+00 (CL IL 47), from 0 to 40 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.
- Station 141+00 to Station 141+45 (CL IL 47), from 0 to 40 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: cis-1,2-Dichloroethene, Tetrachloroethene, Trichloroethene, Benzo(a)pyrene and Manganese.

Site 2279V2-223: Quick Beverage Mart - 991 McConnell Road, Woodstock, McHenry County

- Station 139+00 to Station 140+55 (CL IL 47), from 0 to 100 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: cis-1,2-Dichloroethene, Tetrachloroethene, Trichloroethene, Benzo(a)pyrene and Manganese.

Site 2279V2-225: Dwight's Autobody - 999 S. Eastwood Drive, Woodstock, McHenry County

- Station 139+30 to Station 140+75 (CL McConnell Rd.), from 0 to 60 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with

Article 669.05(a)(1). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

- Station 140+75 to Station 140+85 (CL McConnell Rd.), from 0 to 40 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.
- Station 139+00 to Station 141+00 (CL IL 47), from 0 to 130 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Arsenic, Lead and Manganese.

Site 2279V2-226: Cycle Craft - 1000 S. Eastwood Drive, Woodstock, McHenry County

- Station 137+10 to Station 139+00 (CL IL 47), from 0 to 90 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: Tetrachloroethene, Benzo(a)pyrene and Manganese.

Site 2279V2-227: Mambo Wash - 1100 McConnell Road, Woodstock, McHenry County

- Station 137+05 to Station 137+90 (CL IL 47), from 0 to 170 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: cis-1,2-Dichloroethene, Tetrachloroethene, Trichloroethene, Vinyl Chloride, and Manganese.
- Station 137+90 to Station 139+00 (CL IL 47), from 0 to 130 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.
- Station 138+00 to Station 139+30 (CL McConnell Rd.), from 0 to 40 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.
- Station 139+30 to Station 140+15 (CL McConnell Rd.), from 0 to 150 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: Arsenic and Benzo(a)pyrene.

Site 2279V2-228: McHenry County Farm Bureau - 1102 McConnell Road, Woodstock, McHenry County

- Station 140+15 to Station 140+75 (CL McConnell Rd.), from 0 to 150 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: Arsenic and Benzo(a)pyrene.
- Station 140+75 to Station 142+60 (CL McConnell Rd.), from 0 to 130 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene and Manganese.

Site 2279V2-229: Residential Buildings - 1130-11914 McConnell Road and 880-892 Zimmerman Road, Woodstock, McHenry County

- Station 140+85 to Station 142+60 (CL McConnell Rd.), from 0 to 40 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-234: Railroad - 1100 block of S. Eastwood Drive, Woodstock, McHenry County

- Station 136+90 to Station 137+10 (CL IL 47), from 0 to 40 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: Tetrachloroethene, Benzo(a)pyrene and Manganese.
- Station 136+00 to Station 136+60 (CL IL 47), from 0 to 140 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.
- Station 136+60 to Station 137+05 (CL IL 47), from 0 to 160 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: cis-1,2-Dichloroethene, Tetrachloroethene, Trichloroethene, Vinyl Chloride and Manganese.

Site 2279V2-244: Fur Elegance Pet Salon - 805 Lake Avenue, Woodstock, McHenry County

- Station 169+45 to Station 170+30 (CL Lake Avenue), from 0 to 40 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-246: Commercial Building - 830 Lake Avenue, Woodstock, McHenry County

- Station 169+45 to Station 171+15 (CL Lake Avenue), from 0 to 65 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-247: Coleman's Tavern & Grill - 823 Lake Avenue, Woodstock, McHenry County

- Station 170+30 to Station 171+50 (CL Lake Avenue), from 0 to 40 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-248: Residence - 850 Lake Avenue, Woodstock, McHenry County

- Station 171+15 to Station 172+05 (CL Lake Avenue), from 0 to 75 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-249: NAPA Auto Parts - 855 Lake Avenue, Woodstock, McHenry County

- Station 171+50 to Station 172+00 (CL Lake Avenue), from 0 to 40 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Manganese.
- Station 172+00 to Station 174+00 (CL Lake Avenue), from 0 to 40 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene, Benzo(b)fluoranthene and Dibenzo(a,h)anthracene.
- Station 174+00 to Station 175+55 (CL Lake Avenue), from 0 to 50 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: Arsenic, Benzo(a)pyrene and Manganese.

Site 2279V2-250: Roscoe Woodstock Antiques - 890 Lake Avenue, Woodstock, McHenry County

- Station 172+05 to Station 174+05 (CL Lake Avenue), from 0 to 85 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-252: Commercial Building - 930 Lake Avenue, Woodstock, McHenry County

- Station 174+05 to Station 175+15 (CL Lake Avenue), from 0 to 110 RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-253: Vacant lot - 975 Lake Avenue, Woodstock, McHenry County

- Station 175+55 to Station 177+60 (CL Lake Avenue), from 0 to 100 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: Arsenic, Benzo(a)pyrene and Manganese.
- Station 130+55 to Station 135+00 (CL IL 47), from 0 to 50 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters:
Tetrachloroethene, Trichloroethene, Benzo(a)anthracene, Benzo(a)pyrene,
Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene, Carbazole, Naphthalene and Arsenic.

At the Vacant Lot property, Benzo(a)pyrene and naphthalene were detected at concentrations exceeding the TACO Tier 1 Soil Remediation Objective for the Construction Worker Ingestion and Inhalation exposure routes, respectively, in soil boring B253-3, from the sample interval 4 to 5 feet deep, as noted in the Final Preliminary Site Investigation Report for this project, submitted December 19, 2024, by Weston Solutions, Inc. Procedures shall be implemented to protect site workers and observers from hazards encountered during construction activities in locations containing contaminated materials, pursuant to Article 669 of the Standard Specifications for Road and Bridge Construction manual.

Site 2279V2-254: Marco Auto Mechanics - 1175 S. Eastwood Drive, Woodstock, McHenry County

- Station 134+80 to Station 136+00 (CL IL 47), from 0 to 125 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-255: Storage Space - 1183 S. Eastwood Drive, Woodstock, McHenry County

- Station 134+20 to Station 134+80 (CL IL 47), from 0 to 60 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene, Lead and Manganese.

Site 2279V2-256: Commercial Building - 1193 S. Eastwood Drive, Woodstock, McHenry County

- Station 133+30 to Station 134+20 (CL IL 47), from 0 to 60 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene, Lead and Manganese.

Site 2279V2-261: Best Western - 990 Lake Avenue, Woodstock, McHenry County

- Station 175+15 to Station 177+70 (CL Lake Avenue), from 0 to 160 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene, Benzo(b)fluoranthene and Manganese.

Site 2279V2-262: 3 Brothers Restaurant - 1220 S. Eastwood Drive, Woodstock, McHenry County

- Station 128+70 to Station 130+55 (CL IL 47), from 0 to 80 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.
- Station 177+70 to Station 178+20 (CL Lake Avenue), from 0 to 160 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-263: Marathon Gasoline Station - 1199 S. Eastwood Drive, Woodstock, McHenry County

- Station 178+20 to Station 179+15 (CL Lake Avenue), from 0 to 80 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.
- Station 179+15 to Station 179+60 (CL Lake Avenue), from 0 to 80 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.
- Station 130+00 to Station 131+80 (CL IL 47), from 0 to 70 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.
- Station 131+80 to Station 133+30 (CL IL 47), from 0 to 60 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-264: O'Reilly Auto Parts - 1285 S. Eastwood Drive, Woodstock, McHenry County

- Station 126+50 to Station 128+70 (CL IL 47), from 0 to 65 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.
- Station 128+70 to Station 130+55 (CL IL 47), from 0 to 160 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.
- Station 179+10 to Station 180+10 (CL Lake Avenue), from 0 to 100 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.
- Station 180+10 to Station 182+00 (CL Lake Avenue), from 0 to 55 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-265: Commercial Building - 1023 Lake Avenue and 970 Martha Lane, Woodstock, McHenry County

- Station 179+60 to Station 181+00 (CL Lake Avenue), from 0 to 75 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.
- Station 181+00 to Station 181+50 (CL Lake Avenue), from 0 to 75 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: Arsenic, Benzo(a)pyrene and Manganese.

Site 2279V2-266: Commercial Building - 1036 Lake Avenue, Woodstock, McHenry County

- Station 182+00 to Station 183+20 (CL Lake Avenue), from 0 to 65 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Arsenic, Benzo(a)pyrene and Manganese.

Site 2279V2-267: Commercial Building - 1033-1039 Lake Avenue, Woodstock, McHenry County

- Station 181+50 to Station 183+20 (CL Lake Avenue), from 0 to 60 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: Arsenic, Benzo(a)pyrene and Manganese.

Site 2279V2-273: Commercial Building - 1280-1300 S. Eastwood Drive, Woodstock, McHenry County

- Station 126+10 to Station 127+25 (CL IL 47), from 0 to 70 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Benzo(a)pyrene, Benzo(b)fluoranthene and Manganese.
- Station 127+25 to Station 128+70 (CL IL 47), from 0 to 80 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-274: Woodstock Auto Body & Glass - 1295 S. Eastwood Drive, Woodstock, McHenry County

- Station 129+90 to Station 126+50 (CL IL 47), from 0 to 60 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-275: Kingston Lanes - 1330 S. Eastwood Drive, Woodstock, McHenry County

- Station 123+05 to Station 124+00 (CL IL 47), from 0 to 55 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.
- Station 124+00 to Station 125+75 (CL IL 47), from 0 to 70 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Lead and Manganese.

- Station 125+75 to Station 126+10 (CL IL 47), from 0 to 65 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Benzo(a)pyrene, Benzo(b)fluoranthene and Manganese.

Site 2279V2-276: Donahue Furniture - 1345 S. Eastwood Drive, Woodstock, McHenry County

- Station 122+30 to Station 124+90 (CL IL 47), from 0 to 60 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-281: Commercial Building - 1390 S. Eastwood Drive, Woodstock, McHenry County

- Station 120+60 to Station 122+00 (CL IL 47), from 0 to 70 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Lead and Manganese.
- Station 122+00 to Station 123+05 (CL IL 47), from 0 to 60 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.
- Station 204+05 to Station 205+75 (CL Southview Dr.), from 0 to 55 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.
- Station 205+75 to Station 207+20 (CL Southview Dr.), from 0 to 65 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene, Arsenic and Manganese.
- Station 207+20 to Station 207+95 (CL Southview Dr.), from 0 to 30 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Lead and Manganese.

Site 2279V2-282: Stan's-LPS Midwest - 1375 S. Eastwood Drive, Woodstock, McHenry County

- Station 120+85 to Station 121+00 (CL IL 47), from 0 to 70 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: Arsenic.
- Station 121+00 to Station 122+30 (CL IL 47), from 0 to 70 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-283: Blue Ribbon Millwork - 1401 S. Eastwood Drive, Woodstock, McHenry County

- Station 119+35 to Station 120+85 (CL IL 47), from 0 to 70 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: Arsenic.

Site 2279V2-284: Bull Valley Ford - 1460 S. Eastwood Drive, Woodstock, McHenry County

- Station 116+30 to Station 117+80 (CL IL 47), from 0 to 65 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

- Station 117+80 to Station 119+20 (CL IL 47), from 0 to 80 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Benzo(a)pyrene, Lead and Manganese.
- Station 119+20 to Station 119+65 (CL IL 47), from 0 to 80 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene and Manganese.
- Station 203+55 to Station 206+00 (CL Southview Dr.), from 0 to 45 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene and Manganese.
- Station 206+00 to Station 207+95 (CL Southview Dr.), from 0 to 45 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene and Manganese.

Site 2279V2-285: Residences - 12116-12218 Southview Drive, Woodstock, McHenry County

- Station 203+55 to Station 204+05 (CL Southview Dr.), from 0 to 30 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-287: Commercial Building - 1409-1411 S. Eastwood Drive, Woodstock, McHenry County

- Station 116+50 to Station 117+00 (CL IL 47), from 0 to 70 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene, Lead and Manganese.
- Station 117+00 to Station 119+00 (CL IL 47), from 0 to 70 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.
- Station 119+00 to Station 119+35 (CL IL 47), from 0 to 70 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: Arsenic.

Site 2279V2-288: Popeyes - 1425 S. Eastwood Drive, Woodstock, McHenry County

- Station 115+05 to Station 116+50 (CL IL 47), from 0 to 70 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene, Lead and Manganese.

Site 2279V2-289: Ford of Woodstock - 1480 S. Eastwood Drive, Woodstock, McHenry County

- Station 114+80 to Station 116+30 (CL IL 47), from 0 to 60 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-290: Armanetti Wine and Spirits - 1550 S. Eastwood Drive, Woodstock, McHenry County

- Station 113+30 to Station 114+00 (CL IL 47), from 0 to 60 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.
- Station 114+00 to Station 114+80 (CL IL 47), from 0 to 60 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-291: Woodstock Farm & Lawn Center - 2020 S. Eastwood Drive, Woodstock, McHenry County

- Station 113+55 to Station 115+05 (CL IL 47), from 0 to 70 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-292: Murphy's Flooring - 2104 IL 47, Woodstock, McHenry County

- Station 112+05 to Station 113+55 (CL IL 47), from 0 to 90 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-293: Commercial Building - 1640-1652 S. Eastwood Drive, Woodstock, McHenry County

- Station 110+30 to Station 112+00 (CL IL 47), from 0 to 70 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene and Manganese.
- Station 112+00 to Station 113+30 (CL IL 47), from 0 to 70 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.

Site 2279V2-294: Southwood Center - 1662-1690 S. Eastwood Drive, Woodstock, McHenry County

- Station 107+30 to Station 108+25 (CL IL 47), from 0 to 80 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene, Benzo(b)fluoranthene and Manganese.
- Station 108+25 to Station 110+00 (CL IL 47), from 0 to 80 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.
- Station 110+00 to Station 110+30 (CL IL 47), from 0 to 80 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene and Manganese.

Site 2279V2-295: Vacant Land - 1600 block of S. Eastwood Drive, Woodstock, McHenry County

- Station 109+50 to Station 112+05 (CL IL 47), from 0 to 90 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article

669.05(a)(2). Contaminants of concern sampling parameters: Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene and Manganese.

Site 2279V2-296: Commercial Building - 1710-1780 S. Eastwood Drive, Woodstock, McHenry County

- Station 105+80 to Station 107+30 (CL IL 47), from 0 to 80 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-297: Commercial Building - 1700 S. Eastwood Drive, Woodstock, McHenry County

- Station 106+00 to Station 109+50 (CL IL 47), from 0 to 105 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Arsenic and Manganese.

Site 2279V2-298: Kunes Country Chrysler Dodge Jeep Ram of Woodstock - 1790 S. Eastwood Drive, Woodstock, McHenry County

- Station 102+30 to Station 103+80 (CL IL 47), from 0 to 95 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.
- Station 105+30 to Station 105+80 (CL IL 47), from 0 to 80 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-308: Lake Marine and RV - 2050 S. Eastwood Drive, Woodstock, McHenry County

- Station 88+15 to Station 90+50 (CL IL 47), from 0 to 140 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.
- Station 90+50 to Station 93+50 (CL IL 47), from 0 to 90 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.

Site 2279V2-309: Mobil Gasoline Station - 2025 S. Eastwood Drive, Woodstock, McHenry County

- Station 88+15 to Station 90+50 (CL IL 47), from 0 to 90 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameters: Manganese.
- Station 90+50 to Station 93+95 (CL IL 47), from 0 to 75 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: Benzo(b)fluoranthene, Benzo(a)anthracene, Benzo(a)pyrene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene and Manganese.

Site 2279V2-314: ROW - 1900-2000 Blocks of S. Eastwood Drive, Woodstock, McHenry County

- Station 93+50 to Station 96+00 (CL IL 47), from 0 to 215 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article

- 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.
- Station 96+00 to Station 97+90 (CL IL 47), from 0 to 200 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: Arsenic and Manganese.
 - Station 97+90 to Station 100+00 (CL IL 47), from 0 to 195 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.
 - Station 100+40 to Station 102+30 (CL IL 47), from 0 to 160 feet LT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.
 - Station 93+95 to Station 94+25 (CL IL 47), from 0 to 215 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(5). Contaminants of concern sampling parameters: Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene and Manganese.
 - Station 94+25 to Station 96+00 (CL IL 47), from 0 to 215 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Manganese.
 - Station 96+00 to Station 98+00 (CL IL 47), from 0 to 200 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameters: Benzo(a)pyrene.
 - Station 98+00 to Station 99+55 (CL IL 47), from 0 to 200 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Benzo(a)pyrene and Manganese.
 - Station 100+00 to Station 106+00 (CL IL 47), from 0 to 215 feet RT. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameters: Lead, Manganese and Elevated

At the Vacant Lot property, Arsenic was detected at a concentration exceeding the TACO Tier 1 Soil Remediation Objective for the Construction Worker Ingestion exposure route in soil boring B314-3, from the sample interval 6 to 10 feet deep, as noted in the Final Preliminary Site Investigation Report for this project, submitted December 19, 2024 by Weston Solutions, Inc. Procedures shall be implemented to protect site workers and observers from hazards encountered during construction activities in locations containing contaminated materials, pursuant to Article 669 of the Standard Specifications for Road and Bridge Construction manual.

Work Zones. Three distinct OSHA HAZWOPER work zones (exclusion, decontamination, and support) shall apply to projects adjacent to or within sites with documented leaking underground storage tank (LUST) incidents, or sites under management in accordance with the requirements of the Site Remediation Program (SRP), Resource Conservation and Recovery Act (RCRA), or Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), or as deemed necessary. For this project, the work zones apply for the following ISGS PESA Sites: **166, 170, 253 and 314.**

Engineered Barrier. An engineered barrier shall be installed in storm sewer, sanitary sewer and/or water main trenches to limit the exposure and control the migration of contamination from the contaminated soil that remains within the trench excavation. It shall be placed beneath the trench backfill material at the following locations:

- Station 183+80 to Station 185+30 (CL IL 47), 0 to 100 feet RT (Vacant Lot, PESA Site 2279V2-166, 300 N. Eastwood Drive, Woodstock) – non-special waste. Contaminants of concern sampling parameters: Benzene, Benzo(a)pyrene and Manganese.
- Station 108+70 to Station 111+10 (CL E. Judd Street), 0 to 35 feet RT (Matrix IV, Inc., PESA Site 2279V2-170, 610 E. Judd Street, Woodstock) – non-special waste. Contaminants of concern sampling parameters: Benzene, Chromium and Manganese.
- Station 133+00 to Station 135+00 (CL IL 47), 0 to 50 feet LT (Vacant Lot, PESA Site 2279V2-253, 975 Lake Avenue, Woodstock) – non-special waste. Contaminants of concern sampling parameters: VOCs, Benzo(a)pyrene and Naphthalene.
- Station 96+00 to Station 97+90 (CL IL 47), 200 feet RT (ROW, PESA Site 2279V2-314, 1900-2000 Blocks of S. Eastwood Drive, Woodstock) – non-special waste. Contaminants of concern sampling parameters: Benzo(a)pyrene and Arsenic.

The engineered barrier shall consist of a geosynthetic clay liner system, geomembrane liner, or equivalent material as approved by the Engineer. A geosynthetic clay liner shall be composed of a bentonite clay liner approximately 0.25 inches thick. The engineered barrier shall have a permeability of less than 10^{-7} cm/sec. Installation of the geosynthetic clay liner system shall be in accordance with the manufacturer's recommendations except that all laps shall face down-slope.

The geomembrane liner shall have a minimum thickness of 30 mils. The geomembrane liner shall line the entire trench and installed in accordance with the manufacturer's recommendations.

No equipment will be allowed on the engineered barrier until it is covered by a minimum of 1 foot of backfill. Any damage to the engineered barrier caused by the Contractor shall be repaired at no additional expense to the Department in accordance with the manufacturer's recommendations and as directed by the Engineer.

Method of Measurement: The engineered barrier will be measured for payment in place and the area computed in square yards.

Basis of Payment: The engineered barrier will be paid for at the contract unit price per SQUARE YARD for ENGINEERED BARRIER.

EMBANKMENT I (D1)

Effective: March 1, 2011

Revised: November 1, 2013

Description. This work shall be according to Section 205 of the Standard Specifications except for the following.

Material. All material shall be approved by the District Geotechnical Engineer. The proposed material must meet the following requirements.

- a) The laboratory Standard Dry Density shall be a minimum of 90 lb/cu ft when determined according to AASHTO T 99 (Method C).
- b) The organic content shall be less than ten percent determined according to AASHTO T 194 (Wet Combustion).
- c) Soils which demonstrate the following properties shall be restricted to the interior of the embankment and shall be covered on both the sides and top of the embankment by a minimum of 3 ft (900 mm) of soil not considered detrimental in terms of erosion potential or excess volume change.
 - 1) A grain size distribution with less than 35% passing the number 75 um (#200) sieve.
 - 2) A plasticity index (PI) of less than 12.
 - 3) A liquid limit (LL) in excess of 50.
- d) Reclaimed asphalt shall not be used within the ground water table or as a fill if ground water is present.
- e) The RAP used shall be according to the current Bureau of Materials and Physical Research Policy Memorandum, "Reclaimed Asphalt Pavement (RAP) for Aggregate Applications". Gradation deleterious count shall not exceed 10% of total RAP and 5% of other by total weight.

CONSTRUCTION REQUIREMENTS

Samples. Embankment material shall be sampled, tested, and approved before use. The contractor shall identify embankment sources, and provide equipment as the Engineer requires, for the collection of samples from those sources. Samples will be furnished to the Geotechnical Engineer a minimum of three weeks prior to use in order that laboratory tests for approval and compaction can be performed. Embankment material placement cannot begin until tests are completed and approval given.

Placing Material. In addition to Article 202.03, broken concrete, reclaimed asphalt with no expansive aggregate, or uncontaminated dirt and sand generated from construction or demolition activities shall be placed in 6 inches (150 mm) lifts and disked with the underlying lift until a uniform homogenous material is formed. This process also applies to the overlaying lifts. The disk must have a minimum blade diameter of 24 inches (600 mm).

When embankments are to be constructed on hillsides or existing slopes that are steeper than 3H:1V, steps shall be keyed into the existing slope by stepping and benching as shown in the plans or as directed by the engineer.

Compaction. Soils classification for moisture content control will be determined by the Soils Inspector using visual field examination techniques and the IDH Textural Classification Chart.

When tested for density in place each lift shall have a maximum moisture content as follows.

- a) A maximum of 110% of the optimum moisture for all forms of clay soils.
- b) A maximum of 105% of the optimum moisture for all forms of clay loam soils.

Stability. The requirement for embankment stability in Article 205.04 will be measured with a Dynamic Cone Penetrometer (DCP) according to the test method in the IDOT Geotechnical Manual. The penetration rate must be equal or less than 1.5 inches per blow.

Basis of Payment. This work will not be paid separately but will be considered as included in the various items of excavation.

CLAY LINER

Description. The work shall consist of installing a clay liner along the bottom of detention basins as noted on the plans and in accordance with this special provision.

The clay liner should be manufactured to withstand hydrostatic forces per the groundwater elevations indicated on the construction plans. Clay liner should cover the portion of the pond indicated on the construction plans.

Pond excavation should be observed by a geotechnical engineer to locate any isolated areas of permeable soils such as silt, sand, and gravel. If these soils are encountered, along the sidewalls or at the bottom of the excavation, they should be over excavated approximately 2 feet below the surface and beyond the edges of the zone and backfilled with clay soils to create an impermeable layer.

The clay liner shall be free of organic matter and debris. It shall be placed in lifts and compacted in accordance with Section 205, Embankment of the IDOT Construction Manual. Backfill materials shall be placed in 8 inch loose lifts and be compacted to 98% of the material's maximum dry density as determined by AASHTO T-99, standard proctor method.

Method of Measurement. The installation of clay liner will be measured for payment in place and the volume computed in cubic yards.

Basis of Payment. The installation cost for the clay liner will be paid for at the contract unit price per CUBIC YARD for CLAY LINER. This price shall include all labor, equipment and material needed to complete the work as specified above and as shown in the plans.

TEMPORARY PAVEMENT

Description. This work shall consist of constructing a temporary pavement at the locations shown on the plans or as directed by the Engineer.

The Contractor shall use either PCC according to Sections 353 and 354 of the Standard Specifications or HMA according to Sections 355, 356, 406 of the Standard Specifications, and other applicable HMA special provisions as contained herein. The HMA mixtures to be used shall be specified in the plans. The thickness of the temporary pavement shall be as described in the plans or variable to meet existing conditions. The Contractor shall have the option of constructing either material type if both PCC and HMA are shown in the plans

Articles 355.08 and 406.11 of the Standard Specifications shall not apply.

The removal of the temporary pavement, if required, shall conform to Section 440 of the Standard Specification.

Method of Measurement. Temporary pavement will be measured in place and the area computed in square yards. Temporary pavement placed at variable depth in locations of transitions between existing and temporary pavements or transitions between existing and proposed pavements will be measured in accordance with Article 406.13.

Basis of Payment. This work will be paid for at the contract unit price per SQUARE YARD TEMPORARY PAVEMENT and TEMPORARY PAVEMENT (INTERSTATE) and at the contract unit price per TON for TEMPORARY PAVEMENT (VARIABLE DEPTH).

Removal of temporary pavement will be paid for at the contract unit price per SQUARE YARD PAVEMENT REMOVAL.

AGGREGATE SURFACE COURSE FOR TEMPORARY ACCESS (D1)

Effective: April 1, 2001

Revised: January 2, 2007

Revise Article 402.10 of the Standard Specifications to read:

"402.10 For Temporary Access. The Contractor shall construct and maintain aggregate surface course for temporary access to private entrances, commercial entrances and roads according to Article 402.07 and as directed by the Engineer.

The aggregate surface course shall be constructed to the dimensions and grades specified below, except as modified by the plans or as directed by the Engineer.

- (a) Private Entrance. The minimum width shall be 12 ft. The minimum compacted thickness shall be 6 in. The maximum grade shall be 8%, except as required to match the existing grade.
- (b) Commercial Entrance. The minimum width shall be 24 ft. The minimum compacted thickness shall be 9 in. The maximum grade shall be 6%, except as required to match the existing grade.

- (c) Road. The minimum width shall be 24 ft. The minimum compacted thickness shall be 9 in. The grade and elevation shall be the same as the removed pavement, except as required to meet the grade of any new pavement constructed.

Maintaining the temporary access shall include relocating and/or regrading the aggregate surface coarse for any operation that may disturb or remove the temporary access. The same type and gradation of material used to construct the temporary access shall be used to maintain it.

When use of the temporary access is discontinued, the aggregate shall be removed and utilized in the permanent construction or disposed of according to Article 202.03.”

Add the following to Article 402.12 of the Standard Specifications:

“Aggregate surface course for temporary access will be measured for payment as each for every private entrance, commercial entrance or road constructed for the purpose of temporary access. If a residential drive, commercial entrance, or road is to be constructed under multiple stages, the aggregate needed to construct the second or subsequent stages will not be measured for payment but shall be included in the cost per each of the type specified.”

Revise the second paragraph of Article 402.13 of the Standard Specifications to read:

“Aggregate surface course for temporary access will be paid for at the contract unit price per EACH for TEMPORARY ACCESS (PRIVATE ENTRANCE), TEMPORARY ACCESS (COMMERCIAL ENTRANCE) or TEMPORARY ACCESS (ROAD).

Partial payment of the each amount bid for temporary access, of the type specified, will be paid according to the following schedule:

- (a) Upon construction of the temporary access, 60% of the contract unit price per each, of the type constructed, will be paid.
- (b) Subject to the approval of the Engineer for the adequate maintenance and removal of the temporary access, the remaining 40% of the pay item will be paid upon the permanent removal of the temporary access.”

HOT-MIX ASPHALT BINDER AND SURFACE COURSE (D1)

Effective: November 1, 2019

Revised: January 1, 2025

Revise Article 1004.03(c) to read:

“(c) Gradation. The coarse aggregate gradations shall be as listed in the following table.

| Use | Size/Application | Gradation No. |
|-----------------------|--|--|
| Class A-1, A-2, & A-3 | 3/8 in. (10 mm) Seal | CA 16 or CA 20 |
| Class A-1 | 1/2 in. (13 mm) Seal | CA 15 |
| Class A-2 & A-3 | Cover Coat | CA 14 |
| HMA High ESAL | IL-19.0; Stabilized Subbase IL-19.0 | CA 11 ^{1/} |
| | SMA 12.5 ^{2/} | CA 13 ^{4/} , CA 14, or CA 16 |
| | SMA 9.5 ^{2/} | CA 13 ^{3/4/} or CA 16 ^{3/} |
| | IL-9.5 | CA 16, CM 13 ^{4/} |
| | IL-9.5FG | CA 16 |
| HMA Low ESAL | IL-19.0L | CA 11 ^{1/} |
| | IL-9.5L | CA 16 |

1/ CA 16 or CA 13 may be blended with the CA 11.

2/ The coarse aggregates used shall be capable of being combined with the fine aggregates and mineral filler to meet the approved mix design and the mix requirements noted herein.

3/ The specified coarse aggregate gradations may be blended.

4/ CA 13 shall be 100% passing the 1/2 in. (12.5mm) sieve.”

Revise Article 1004.03(e) of the Standard Specifications to read:

“(e) Absorption. For SMA the coarse aggregate shall also have water absorption $\leq 2.0\%$.”

Revise the “High ESAL” portion of the table in Article 1030.01 to read:

| | | |
|------------|-----------------|--|
| “High ESAL | Binder Courses | IL-19.0, IL-9.5, IL-9.5FG, IL-4.75, SMA 12.5, Stabilized Subbase IL-19.0 |
| | Surface Courses | IL-9.5, IL-9.5FG, SMA 12.5, SMA 9.5” |

Revise Note 2. and add Note 6 to Article 1030.02 of the Standard Specifications to read:

| “Item | Article/Section |
|---|-----------------|
| (g)Performance Graded Asphalt Binder (Note 6) | 1032 |
| (h)Fibers (Note 2) | |

Note 2. A stabilizing additive such as cellulose or mineral fiber shall be added to the SMA mixture according to Illinois Modified AASHTO M 325. The stabilizing additive shall meet the Fiber Quality Requirements listed in Illinois Modified AASHTO M 325. Prior to approval and use of fibers, the Contractor shall submit a notarized certification by the producer of these materials stating they meet these requirements. RAS may be used in SMA mixtures designed with an SBA polymer modifier as a fiber additive if the mix design with RAS included meets AASHTO T305 requirements. The RAS shall be from a certified source that produces either type i or type 2. Material shall meet requirements noted herein and the actual dosage rate will be determined by the Engineer.

Note 6. The asphalt binder shall be an SBS PG 76-28 when the SMA is used on a full-depth asphalt pavement and SBS PG 76-22 when used as an overlay, except where modified herein. The asphalt binder shall be a SBS PG 76-22 for IL-4.75, except where modified herein..”

Revise table in Article 1030.05(a) of the Standard Specifications to read:

| "MIXTURE COMPOSITION (% PASSING)" ^{1/} | | | | | | | | | | | | |
|---|------------|-----|----------|-------------------|---------|-------------------|------------------|------------------|----------|------------------|------------|-------------------|
| Sieve Size | IL-19.0 mm | | SMA 12.5 | | SMA 9.5 | | IL-9.5mm | | IL-9.5FG | | IL-4.75 mm | |
| | min | max | min | max | min | max | min | max | min | max | min | max |
| 1 1/2 in (37.5 mm) | | | | | | | | | | | | |
| 1 in. (25 mm) | | 100 | | | | | | | | | | |
| 3/4 in. (19 mm) | 90 | 100 | | 100 | | | | | | | | |
| 1/2 in. (12.5 mm) | 75 | 89 | 80 | 100 | | 100 | | 100 | | 100 | | 100 |
| 3/8 in. (9.5 mm) | | | | 65 | 90 | 100 | 90 | 100 | 90 | 100 | | 100 |
| #4 (4.75 mm) | 40 | 60 | 20 | 30 | 36 | 50 | 34 | 69 | 60 | 75 ^{6/} | 90 | 100 |
| #8 (2.36 mm) | 20 | 42 | 16 | 24 ^{4/} | 16 | 32 ^{4/} | 34 ^{5/} | 52 ^{2/} | 45 | 60 ^{6/} | 70 | 90 |
| #16 (1.18 mm) | 15 | 30 | | | | | 10 | 32 | 25 | 40 | 50 | 65 |
| #30 (600 µm) | | | 12 | 16 | 12 | 18 | | | 15 | 30 | | |
| #50 (300 µm) | 6 | 15 | | | | | 4 | 15 | 8 | 15 | 15 | 30 |
| #100 (150 µm) | 4 | 9 | | | | | 3 | 10 | 6 | 10 | 10 | 18 |
| #200 (75 µm) | 3.0 | 6.0 | 7.0 | 9.0 ^{3/} | 7.5 | 9.5 ^{3/} | 4.0 | 6.0 | 4.0 | 6.5 | 7.0 | 9.0 ^{3/} |
| #635 (20 µm) | | | ≤ 3.0 | | ≤ 3.0 | | | | | | | |
| Ratio Dust/Asphalt Binder | | 1.0 | | 1.5 | | 1.5 | | 1.0 | | 1.0 | | 1.0 |

- 1/ Based on percent of total aggregate weight.
- 2/ The mixture composition shall not exceed 44% passing the #8 (2.36 mm) sieve for surface courses with Ndesign = 90.
- 3/ Additional minus No. 200 (0.075 mm) material required by the mix design shall be mineral filler, unless otherwise approved by the Engineer.
- 4/ When establishing the Adjusted Job Mix Formula (AJMF) the percent passing the #8 (2.36 mm) sieve shall not be adjusted above the percentage stated on the table.
- 5/ When establishing the AJMF the percent passing the #8 (2.36 mm) sieve shall not be adjusted below 34%.
- 6/ When the mixture is used as a binder, the maximum shall be increased by 0.5% passing."

Revise Article 1030.05(b) of the Standard Specifications to read:

- (b) Volumetric Requirements. The target value for the air voids of the HMA shall be 4.0%, for IL-4.75 and SMA mixtures it shall be 3.5% and for stabilized subbase it shall be 3.0% at the design number of gyrations. The voids in the mineral aggregate (VMA) and voids filled with asphalt binder (VFA) of the HMA design shall be based on the nominal maximum size of the aggregate in the mix and shall conform to the following requirements.

| Mix Design | Voids in the Mineral Aggregate (VMA), % Minimum for Ndesign | | | | |
|----------------------------|--|------|------|--|------|
| | 30 | 50 | 70 | 80 | 90 |
| IL-19.0 | | 13.5 | 13.5 | | 13.5 |
| IL-9.5 | | 15.0 | 15.0 | | |
| IL-9.5FG | | 15.0 | 15.0 | | |
| IL-4.75 ^{1/} | | 18.5 | | | |
| SMA-12.5 ^{1/2/5/} | | | | 17.0 ^{3/} /16.0 ^{4/} | |
| SMA-9.5 ^{1/2/5/} | | | | 17.0 ^{3/} /16.0 ^{4/} | |
| IL-19.0L | 13.5 | | | | |
| IL-9.5L | 15.0 | | | | |

- 1/ Maximum draindown shall be 0.3% according to Illinois Modified AASHTO T 305.
- 2/ The draindown shall be determined at the JMF asphalt binder content at the mixing temperature plus 30°F.
- 3/ Applies when specific gravity of coarse aggregate is ≥ 2.760 .
- 4/ Applies when specific gravity of coarse aggregate is < 2.760 .
- 5/ For surface course, the coarse aggregate can be crushed steel slag, crystalline crushed stone or crushed sandstone. For binder course, coarse aggregate shall be crushed stone (dolomite), crushed gravel, crystalline crushed stone, or crushed sandstone"

Revise the last paragraph of Article 1102.01 (a) (5) of the Standard Specifications to read:

"IL-4.75 and SMA mixtures which contain aggregate having absorptions greater than or equal to 2.0%, or which contain steal slag sand, shall have minimum surge bin storage plus haul time of 1.5 hours."

Revise the first and second paragraphs of Articles 1030.06(c)(2) of the Standard Specifications to read:

“(2) Personnel. The Contractor shall provide a QC manager who shall have overall responsibility and authority for quality control. This individual shall maintain active certification as a HMA level II technician.

In addition to the QC manager, the Contractor shall provide sufficient personnel to perform the required visual inspections, sampling, testing, and documentation in a timely manner. Mix designs shall be developed by personnel with an active certification as a HMA level III technician. Technicians performing mix design testing and plant sampling/testing shall maintain active certification as a HMA level I technician. The Contractor may provide a technician trainee who has successfully completed the Department's "Hot-Mix Asphalt Trainee Course" to assist in the activities completed by a HMA level I technician for a period of one year after the course completion date. The Contractor may also provide a gradation technician who has successfully completed the Department's "Gradation Technician Course" to run gradation tests only under the supervision of a HMA level II Technician. The Contractor shall provide a HMA density tester who has successfully completed the Department's "Nuclear Density Testing" course to run all nuclear density tests on the job site.”

Add Article 1030.06(d)(3) to the Standard Specifications to read:

“(3) The Contractor shall take possession of any Department unused backup or dispute resolution HMA mixture samples or density specimens upon notification by the Engineer. The Contractor shall collect the HMA mixture samples or density specimens from the location designated by the Engineer. The HMA mixture samples or density specimens may be added to RAP stockpiles according to Section 1031.”

Revise the second paragraph of Articles 1030.07(a)(11) and 1030.08(a)(9) of the Standard Specifications to read:

“When establishing the target density, the HMA maximum theoretical specific gravity (Gmm) will be based on the running average of four available Department test results for that project. If less than four Gmm test results are available, an average of all available Department test results for that project will be used. The initial Gmm will be the last available Department test result from a QMP project. If there is no available Department test result from a QMP project, the Department mix design verification test result will be used as the initial Gmm.”

Revise the following table and notes in Article 1030.09 (c) of the Standard Specifications to read:

| CONTROL LIMITS | | | | | | |
|-------------------------------------|--|---------------------|----------------------|---------------------|--------------------|---------------------|
| Parameter | IL-19.0, IL-9.5, IL-9.5FG, IL-19.0L, IL-9.5L | | SMA-12.5, SMA-9.5 | | IL-4.75 | |
| | Individual Test | Moving Avg. of 4 | Individual Test | Moving Avg. of 4 | Individual Test | Moving Avg. of 4 |
| % Passing: ^{1/} | | | | | | |
| 1/2 in. (12.5 mm) | ± 6 % | ± 4 % | ± 6 % | ± 4 % | | |
| 3/8 in. (9.5mm) | | | ± 4 % | ± 3 % | | |
| # 4 (4.75 mm) | ± 5 % | ± 4 % | ± 5 % | ± 4 % | | |
| # 8 (2.36 mm) | ± 5 % | ± 3 % | ± 4 % | ± 2 % | | |
| # 16 (1.18 mm) | | | ± 4 % | ± 2 % | ± 4 % | ± 3 % |
| # 30 (600 µm) | ± 4 % | ± 2.5 % | ± 4 % | ± 2.5 % | | |
| Total Dust Content # 200 (75 µm) | ± 1.5 % | ± 1.0 % | | | ± 1.5 % | ± 1.0 % |
| Asphalt Binder Content | ± 0.3 % | ± 0.2 % | ± 0.2 % | ± 0.1 % | ± 0.3 % | ± 0.2 % |
| Air Voids ^{2/} | ± 1.2 % | ± 1.0 % | ± 1.2 % | ± 1.0 % | ± 1.2 % | ± 1.0 % |
| Field VMA ^{3/} | -0.7 % | -0.5 % | -0.7 % | -0.5 % | -0.7 % | -0.5 % |

1/ Based on washed ignition oven or solvent extraction gradation.

2/ The air voids target shall be a value equal to or between 3.2 % and 4.8 %.

3/ Allowable limit below minimum design VMA requirement.

Revise Article 1030.09(g)(2) of the Standard Specifications to read:

“(2)The Contractor shall complete split verification sample tests listed in the Limits of Precision table in Article 1030.09(h)(1).”

In the Supplemental Specifications, replace the revision for the end of the third paragraph of Article 1030.09(h)(2) with the following:

“When establishing the target density, the HMA maximum theoretical specific gravity (Gmm) will be the Department mix design verification test result.”

Add after third sentence of Article 1030.09(b) to read:

“If the Contractor and Engineer agree the nuclear density test method is not appropriate for the mixture, cores shall be taken at random locations determined according to the QC/QA document "Determination of Random Density Test Site Locations". Core densities shall be determined using the Illinois Modified AASHTO T 166 or T 275 procedure.”

Revise Table 1 and Note 4/ of Table 1 in Article 406.07(a) of the Standard Specifications to read:

| | Breakdown/Intermediate Roller (one of the following) | Final Roller (one or more of the following) | Density Requirement |
|---|--|---|---|
| IL-9.5, IL-9.5FG, IL-19.0 ^{1/} | V _D , P, T _B , 3W, O _T , O _B | V _S , T _B , T _F , O _T | As specified in Section 1030 |
| IL-4.75 and SMA ^{3/ 4/} | T _B , 3W, O _T | T _F , 3W | As specified in Section 1030 |
| Mixtures on Bridge Decks ^{2/} | T _B | T _F | As specified in Articles 582.05 and 582.06. |

“4/ The Contractor shall provide a minimum of two steel-wheeled tandem rollers (T_B), and/or three-wheel (3W) rollers for breakdown, except one of the (T_B) or (3W) rollers shall be 84 inches wide and a weight of 315 pound per linear inch (PLI) and one of the (T_B) or (3W) rollers can be substituted for an oscillatory roller (O_T). T_F rollers shall be a minimum of 280 lb/in.. The 3W and T_B rollers shall be operated at a uniform speed not to exceed 3 mph, with the drive roll for T_B rollers nearest the paver and maintain an effective rolling distance of not more than 150 ft behind the paver.”

Add the following after the fourth paragraph of Article 406.13 (b):

“The plan quantities of SMA mixtures shall be adjusted using the actual approved binder and surface mix design’s G_{mb}.”

Revise first paragraph of Article 1030.10 of the Standard Specifications to read:

“A test strip of 300 ton, except for SMA mixtures it will be 400 ton, will be required for each mixture on each contract at the beginning of HMA production for each construction year according to the Manual of Test Procedures for Materials “Hot Mix Asphalt Test Strip Procedures”. At the request of the Producer, the Engineer may waive the test strip if previous construction during the current construction year has demonstrated the constructability of the mix using Department test results.”

Revise fourth paragraph of Article 1030.10 of the Standard Specifications to read:

“When a test strip is constructed, the Contractor shall collect and split the mixture according to the document “Hot-Mix Asphalt Test Strip Procedures”. The Engineer, or a representative, shall deliver split sample to the district laboratory for verification testing. The Contractor shall complete mixture tests stated in Article 1030.09(a). Mixture sampled shall include enough material for the Department to conduct mixture tests detailed in Article 1030.09(a) and in the document “Hot-Mix Asphalt Mixture Design Verification Procedure” Section 3.3. The mixture test results shall meet the requirements of Articles 1030.05(b) and 1030.05(d), except Hamburg wheel tests will only be conducted on High ESAL mixtures during production.”

WINTERIZED TEMPORARY ACCESS (D1)

Effective: January 1, 2012

Revised: March 5, 2012

Description. This work shall consist of constructing, maintaining and removing winterized temporary access for private and commercial entrances and side roads designed for use throughout the winter months.

Materials. Materials shall be according to the following.

| ITEM | ARTICLE/SECTION |
|-----------------|-----------------|
| Hot-Mix Asphalt | 1030 |

Construction Requirements. For projects lasting longer than one construction season, the contractor shall construct and maintain temporary access composed of an HMA surface course over an existing aggregate temporary access. The Contractor shall install the winterized temporary access prior to winter shut down at the direction of the Engineer. The top 2" of the existing aggregate temporary access should be removed and replaced with 2" of HMA. Compensation will be given for the winterized temporary access at the time of the installation of the HMA surface course.

HMA Surface Course. The HMA surface course shall be 2 in. thick when compacted. HMA surface course, mix "D", N50 shall be used except as modified by the plans or as directed by the Engineer. This work shall be constructed in accordance with the applicable portions of Section 406 of the Standard Specifications and as directed by the Engineer. The material shall conform to the applicable portions of Section 1030 of the Standard Specifications.

The winterized temporary access shall be constructed to the dimensions and grades of the existing aggregate temporary access.

Maintaining the winterized temporary access shall include repairing the HMA surface course after any operation that may disturb or remove the winterized temporary access to the satisfaction of the Engineer.

When use of the winterized temporary access is discontinued, the winterized temporary access shall be removed according to Article 440.03 of the Standard Specifications. The material shall be disposed of according to Article 202.03 of the Standard Specifications or may be utilized in the permanent construction with the approval of the Engineer.

Method of Measurement. Winterized temporary access for private and commercial entrances and roads will be measured for payment at the contract unit price per square yard for every private entrance, commercial entrance or road constructed for the purpose of winterized temporary access.

Basis of Payment. Winterized temporary access for private and commercial entrances and roads will be paid for at the contract unit price per SQUARE YARD for TEMPORARY ACCESS (WINTERIZE) as specified in the plans.

Partial payment of the square yard amount bid for each winterized temporary access will be paid according to the following schedule:

- (a) Upon construction of the winterized temporary access, 60% of the contract unit price per square yard will be paid.
- (b) Subject to the approval of the Engineer for the adequate maintenance and removal of the winterized temporary access, the remaining 40% the pay item will be paid upon the permanent removal of the temporary access.

CLASS D PATCHES (SPECIAL)

Effective: July 24, 2020

Description. This work shall consist of all labor, materials and equipment necessary to construct class D patches at the locations shown on the plans and/ or locations determined by the Engineer in the field. The work shall be performed according to Section 442 of the Standard Specifications, except as modified herein.

Delete Note 2 from Article 442.02 of the Standard Specification and replace with the following:

“Note 2. The mixture composition of the HMA used shall be binder course and surface course as specified in the Hot-Mix Asphalt Mixtures Requirements table in the plans.”

Basis of Payment. This work shall be paid for at the contract unit price per square yard of CLASS D PATCHES, of the type and thickness specified, (SPECIAL).

PAVEMENT PATCHING (SPECIAL)

Description. This work shall consist of providing all labor, materials and equipment necessary to construct class D patches at locations of water main and sanitary sewer removals and installations. The work shall be performed according to Section 442 of the Standard Specifications, except as modified herein.

Construction. The work shall consist of the removal, disposal and patching of existing roadways, driveways, and parking lots with class D pavement patches regardless of the existing material type. The pavement patch shall consist of HMA binder course placed at a thickness of 10 inches if located within a roadway and 6 inches if located within driveways and parking lots. The HMA binder course should be flush with the adjacent existing pavement.

Saw cutting and additional subbase granular material will not be paid for separately but shall be included in the cost of the work.

Patching will not be quantified by size, but rather all sizes of patches shall be included in this pay item.

Method of Measurement. Pavement patching (special) will be measured in place, and the area computed in square yards.

Basis of Payment. This work will be paid for at the contract unit price per SQUARE YARD for PAVEMENT PATCHING (SPECIAL) regardless of the patch thickness.

FRICTION AGGREGATE (D1)

Effective: January 1, 2011

Revised: December 1, 2021

Revise Article 1004.03(a) of the Standard Specifications to read:

“1004.03 Coarse Aggregate for Hot-Mix Asphalt (HMA). The aggregate shall be according to Article 1004.01 and the following.

(a) Description. The coarse aggregate for HMA shall be according to the following table.

| Use | Mixture | Aggregates Allowed |
|------------------------------|--|--|
| Class A | Seal or Cover | <u>Allowed Alone or in Combination</u> ^{5/} : Gravel Crushed Gravel Carbonate Crushed Stone Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag Crushed Concrete |
| HMA Low ESAL | Stabilized Subbase or Shoulders | <u>Allowed Alone or in Combination</u> ^{5/} : Gravel Crushed Gravel Carbonate Crushed Stone Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag ^{1/} Crushed Concrete |
| HMA High ESAL Low ESAL | Binder IL-19.0 or IL-19.0L SMA Binder | <u>Allowed Alone or in Combination</u> ^{5/ 6/} : Crushed Gravel Carbonate Crushed Stone ^{2/} Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Concrete ^{3/} |
| HMA High ESAL Low ESAL | C Surface and Binder IL-9.5 IL-9.5FG or IL-9.5L | <u>Allowed Alone or in Combination</u> ^{5/} : Crushed Gravel Carbonate Crushed Stone ^{2/} Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag ^{4/} Crushed Concrete ^{3/} |

FAP ROUTE 326 (IL 47)
PROJECT NHPP-ITEP-BKZI(697)
SECTION 2024-1052-N,C, SW, FL
MCHENRY COUNTY
CONTRACT NO. 62X94

| Use | Mixture | Aggregates Allowed | | | | | | | | |
|----------------------------------|--|--|----------|---------|----------------------------|-------------------------|----------------------------|--|----------------------------------|--|
| HMA High ESAL | D Surface and Binder IL-9.5 or IL-9.5FG | <u>Allowed Alone or in Combination</u> ^{5/} : | | | | | | | | |
| | | Crushed Gravel | | | | | | | | |
| | | Carbonate Crushed Stone (other than Limestone) ^{2/} | | | | | | | | |
| | | Crystalline Crushed Stone | | | | | | | | |
| | | Crushed Sandstone | | | | | | | | |
| | | Crushed Slag (ACBF) | | | | | | | | |
| | | Crushed Steel Slag ^{4/} | | | | | | | | |
| | | <u>Other Combinations Allowed:</u> | | | | | | | | |
| | | <table><tr><th>Up to...</th><th>With...</th></tr><tr><td>25% Limestone</td><td>Dolomite</td></tr><tr><td>50% Limestone</td><td>Any Mixture D aggregate other than Dolomite</td></tr><tr><td>75% Limestone</td><td>Crushed Slag (ACBF) or Crushed Sandstone</td></tr></table> | Up to... | With... | 25% Limestone | Dolomite | 50% Limestone | Any Mixture D aggregate other than Dolomite | 75% Limestone | Crushed Slag (ACBF) or Crushed Sandstone |
| Up to... | With... | | | | | | | | | |
| 25% Limestone | Dolomite | | | | | | | | | |
| 50% Limestone | Any Mixture D aggregate other than Dolomite | | | | | | | | | |
| 75% Limestone | Crushed Slag (ACBF) or Crushed Sandstone | | | | | | | | | |
| HMA High ESAL | E Surface IL-9.5 SMA Ndesign 80 Surface | <u>Allowed Alone or in Combination</u> ^{5/ 6/} : | | | | | | | | |
| | | Crushed Gravel | | | | | | | | |
| | | Crystalline Crushed Stone | | | | | | | | |
| | | Crushed Sandstone | | | | | | | | |
| | | Crushed Slag (ACBF) | | | | | | | | |
| | | Crushed Steel Slag | | | | | | | | |
| | | No Limestone. | | | | | | | | |
| | | <u>Other Combinations Allowed:</u> | | | | | | | | |
| | | <table><tr><th>Up to...</th><th>With...</th></tr><tr><td>50% Dolomite^{2/}</td><td>Any Mixture E aggregate</td></tr><tr><td>75% Dolomite^{2/}</td><td>Crushed Sandstone, Crushed Slag (ACBF), Crushed Steel Slag, or Crystalline Crushed Stone</td></tr><tr><td>75% Crushed Gravel^{2/}</td><td>Crushed Sandstone, Crystalline Crushed Stone, Crushed Slag (ACBF), or Crushed Steel Slag</td></tr></table> | Up to... | With... | 50% Dolomite ^{2/} | Any Mixture E aggregate | 75% Dolomite ^{2/} | Crushed Sandstone, Crushed Slag (ACBF), Crushed Steel Slag, or Crystalline Crushed Stone | 75% Crushed Gravel ^{2/} | Crushed Sandstone, Crystalline Crushed Stone, Crushed Slag (ACBF), or Crushed Steel Slag |
| Up to... | With... | | | | | | | | | |
| 50% Dolomite ^{2/} | Any Mixture E aggregate | | | | | | | | | |
| 75% Dolomite ^{2/} | Crushed Sandstone, Crushed Slag (ACBF), Crushed Steel Slag, or Crystalline Crushed Stone | | | | | | | | | |
| 75% Crushed Gravel ^{2/} | Crushed Sandstone, Crystalline Crushed Stone, Crushed Slag (ACBF), or Crushed Steel Slag | | | | | | | | | |

| Use | Mixture | Aggregates Allowed | |
|------------------|---|--|--|
| HMA High ESAL | F Surface IL-9.5 SMA Ndesign 80 Surface | <u>Allowed Alone or in Combination</u> ^{5/ 6/} : | |
| | | Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag No Limestone. | |
| | | <u>Other Combinations Allowed:</u> | |
| | | <u>Up to...</u> | <u>With...</u> |
| | | 50% Crushed Gravel ^{2/} or Dolomite ^{2/} | Crushed Sandstone, Crushed Slag (ACBF), Crushed Steel Slag, or Crystalline Crushed Stone |

- 1/ Crushed steel slag allowed in shoulder surface only.
- 2/ Carbonate crushed stone (limestone) and/or crushed gravel shall not be used in SMA Ndesign 80.
- 3/ Crushed concrete will not be permitted in SMA mixes.
- 4/ Crushed steel slag shall not be used as binder.
- 5/ When combinations of aggregates are used, the blend percent measurements shall be by volume."
- 6/ Combining different types of aggregate will not be permitted in SMA Ndesign 80."

HOT-MIX ASPHALT – MIXTURE DESIGN VERIFICATION AND PRODUCTION (D1)

Effective: January 1, 2019

Revised: December 1, 2021

Add to Article 1030.05 (d)(3) of the Standard Specifications to read:

" During mixture design, prepared samples shall be submitted to the district laboratory by the Contractor for verification testing. The required testing, and number and size of prepared samples submitted, shall be according to the following tables.

| High ESAL – Required Samples for Verification Testing | |
|---|--|
| Mixture | Hamburg Wheel and I-FIT Testing ^{1/ 2/} |
| Binder | total of 3 - 160 mm tall bricks |
| Surface | total of 4 - 160 mm tall bricks |

| Low ESAL – Required Samples for Verification Testing | |
|--|--------------------------------|
| Mixture | I-FIT Testing ^{1/ 2/} |
| Binder | 1 - 160 mm tall brick |
| Surface | 2 - 160 mm tall bricks |

- 1/ The compacted gyratory bricks for Hamburg wheel and I-FIT testing shall be $7.5 \pm 0.5\%$ air voids.
- 2/ If the Contractor does not possess the equipment to prepare the 160 mm tall brick(s), twice as many 115 mm tall compacted gyratory bricks will be acceptable.

Revise the fourth paragraph of Article 1030.10 of the Standard Specifications to read:

“When a test strip is not required, each HMA mixture shall still be sampled on the first day of production: I-FIT and Hamburg wheel testing for high ESAL; I-FIT testing for low ESAL. Within two working days after sampling the mixture, the Contractor shall deliver gyratory cylinders to the district laboratory for department verification testing. The high ESAL mixture test results shall meet the requirements of Articles 1030.05(d)(3) and 1030.05(d)(4). The low ESAL mixture test results shall meet the requirements of Article 1030.05(d)(4). The required number and size of prepared samples submitted for the Hamburg wheel and I-FIT testing shall be according to the “High ESAL - Required Samples for Verification Testing” table in Article 1030.05(d)(3) above.”

Add the following to the end of Article 1030.10 of the Standard Specifications to read:

“Mixture sampled during first day of production shall include approximately 60 lb of additional material for the Department to conduct Hamburg wheel testing and approximately 80 lb of additional material for the Department to conduct I-FIT testing. Within two working days after sampling, the Contractor shall deliver prepared samples to the district laboratory for verification testing. The required number and size of prepared samples submitted for the Hamburg wheel and I-FIT testing shall be according to the “High ESAL - Required Samples for Verification Testing” table in Article 1030.05(d)(3) above.”

SLIPFORM PAVING (D1)

Effective: November 1, 2014

Revise Article 1020.04 Table 1, Note (5) of Standard Specifications to read:

“The slump range for slipform construction shall be 1/2 to 1 1/2 in.”

Revise Article 1020.04 Table 1 (metric), Note (5) of Standard Specifications to read:

“The slump range for slipform construction shall be 13 to 40 mm.”

FLY ASH RESTRICTION

Effective: May 8, 2012

Revised: August 21, 2018

The use of fly ash in class PV concrete will not be allowed. All references to fly ash in the Standard Specifications shall not apply.

STAMPED COLORED PORTLAND CEMENT CONCRETE MEDIAN SURFACE

Description. This work shall consist of constructing integrally colored PCC median pavement with imprinted pattern, surface hardener, cure, and cure/sealer for roadway medians behind the curb on the specified corners of the roundabout, as shown the plans. This work shall be completed in accordance with the applicable portions of Section 606, as indicated herein and as directed by the Engineer.

Submittals. Manufacturer's data sheets shall be submitted on each product to be used, including preparation instructions, storage and handling requirements, and installation methods.

Quality Assurance. The installer shall provide a qualified foreman or supervisor who has a minimum of three years experience with imprinted and textured concrete, and who has successfully completed at least five imprinted concrete installation of high quality and similar in scope to that required. The concrete shall be cast-in-place on the job site by trained and experienced workers. Obtain materials from the same source for all colored and imprinted work. The Contractor shall provide a technical representative from the color supplier for the first day of concrete placement to assist in concrete batching and job site finishing and curing.

Sample Panel Mock-Up. Prior to beginning work, provide field samples of integrally colored PCC with imprinted pattern, surface hardener, and cure/sealer. Samples to be 48 inches by 48 inches, 8 inch thick with surface colors and patterns specified. Do not proceed with work until the workmanship, pattern, color, and sheen are approved by the Engineer. Refinish mock-ups or provide additional samples as required to obtain the Engineer's approval.

Materials. Provide all material in accordance with Section 503 of the Standard Specifications. The pattern to be used shall be herringbone brick with a single course pattern and the color to be used shall be 2.5YR2/8 from the Munsell color chart or a close approximation. A color hardener will be required. Final pattern and color selections to be approved by the Engineer.

The concrete mix design for all medians shall be integrally colored. The pay item's use shall determine the class of concrete in accordance with Section 1020 of the Standard Specifications, with the exception that the minimum cement factor shall be 6.05 cwt. The coarse aggregate to be used shall contain no more than 2% by weight of deleterious materials. Deleterious materials shall include substances whose disintegration is accompanied by an increase in volume which may cause spalling of the concrete.

Integral coloring admixture shall be a non-fading synthetic oxide pigment meeting ASTM C979. Add integral color according to the manufacturer's instructions.

Color hardener shall be applied to the surface of the concrete according to the manufacturer's instructions and recommended application techniques.

Form release agent shall be a liquid membrane-forming clear curing compound conforming to AASHTO M148, Type 1. Apply a separate curing and sealing compound for integrally colored concrete according to the manufacturer's instructions and recommended application techniques. The compound should include a slip-resistant additive. Apply the curing compound at a uniform interval after each pour to maintain a consistency in finished coloration.

Use admixture designed for use and compatibility with colored concrete pigments. Do not use calcium chloride or admixtures containing chlorides. Use the same admixtures for colored concrete pavement throughout the project.

The change in any material ingredient in the concrete may require a new mock-up be constructed for the Engineer's approval.

Joint fillers shall be selected to match the integral colors selected for the project.

Equipment. Imprinting tools shall be used for texturing freshly placed concrete in a pattern/texture as approved by the Engineer. Tools are to be used according to the manufacturer's instructions.

General. This work shall be according to Sections 503 and 606 of the Standard Specifications and the following:

Colored concrete mixes for the entire project are to be consistent. If additional water is added to the colored concrete once a truck is on site, this concrete will be rejected.

Cover and protect adjacent construction and concrete from discoloration and spillage during placement and curing of colored concrete. Remove and replace discolored concrete as Engineer directs.

Uniformly apply liquid release agent onto the colored, still plastic state concrete to provide clean release of imprinting tools from the concrete surface without lifting imprint or rearing concrete.

Contractor shall monitor the setting of the concrete, once the concrete is ready for imprinting, contractor shall accurately align and place the imprinting stamps uniformly pressing or pounding the imprint tools to produce the required pattern and depth of imprint on the concrete surface. Remove platform tools immediately. Hand texture and stamp edges and surfaces unable to be imprinted with the stamping mats. Touch up imperfections such as broken corners, double imprints, and surface cracks.

Do not cure colored concrete using plastic sheeting unless necessary due to weather conditions. Plastic sheeting shall not be laid directly on top to the concrete as discoloration will occur. Plastic shall be suspended above the concrete.

All completed areas of colored concrete shall be of consistent color and appearance and must meet the approval of the Engineer. Any finished areas that are rejected by Engineer shall be removed and replaced by Contractor at no additional cost to the Department.

Note that the adjacent combination curb and gutter is measured and paid for separately and is to remain natural concrete color.

Method of Measurement. Stamped colored PCC median surface of the thickness specified on the plans will be measured for payment in place and the area computed in square feet. Concrete curb and gutter around the median will be measured separately for payment.

Basis of Payment. This work shall be paid for at the contract unit price per SQUARE FOOT for STAMPED COLORED PORTLAND CEMENT CONCRETE MEDIAN SURFACE of the thickness specified on the plans.

STAMPED COLORED PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH

Description. This work shall consist of constructing integrally colored PCC sidewalk with imprinted pattern, surface hardener, cure, and cure/sealer, as shown the plans. The work shall be in accordance with the applicable portions of Section 424, as indicated herein and as directed by the Engineer.

Submittals. Manufacturer's data sheets shall be submitted on each product to be used, including preparation instructions, storage and handling requirements, and installation methods.

Quality Assurance. The installer shall provide a qualified foreman or supervisor who has a minimum of three years experience with imprinted and textured concrete, and who has successfully completed at least five imprinted concrete installation of high quality and similar in scope to that required. The concrete shall be cast-in-place on the job site by trained and experienced workers. Obtain materials from the same source for all colored and imprinted work. The Contractor shall provide a technical representative from the color supplier for the first day of concrete placement to assist in concrete batching and job site finishing and curing.

Sample Panel Mock-Up. Prior to beginning work, provide field samples of integrally colored PCC with imprinted pattern, surface hardener, and cure/sealer. Samples to be 48 inches by 48 inches, 5 inch thick with surface colors and patterns specified. Do not proceed with work until the workmanship, pattern, color, and sheen are approved by the Engineer. Refinish mock-ups or provide additional samples as required to obtain the Engineer's approval.

Materials. Provide all material in accordance with Section 503 of the Standard Specifications. The pattern to be used shall be herringbone brick with a single course pattern and the color to be used shall be 2.5YR2/8 from the Munsell color chart or a close approximation. A color hardener will be required. Final pattern and color selections to be approved by the Engineer.

The concrete mix design for all sidewalks shall be integrally colored. The pay item's use shall determine the class of concrete in accordance with Section 1020 of the Standard Specifications, with the exception that the minimum cement factor shall be 6.05 cwt. The coarse aggregate to be used shall contain no more than 2% by weight of deleterious materials. Deleterious materials shall include substances whose disintegration is accompanied by an increase in volume which may cause spalling of the concrete.

Integral coloring admixture shall be a non-fading synthetic oxide pigment meeting ASTM C979. Add integral color according to the manufacturer's instructions.

Color hardener shall be applied to the surface of the concrete according to the manufacturer's instructions and recommended application techniques.

Form release agent shall be a liquid membrane-forming clear curing compound conforming to AASHTO M148, Type 1. Apply a separate curing and sealing compound for integrally colored concrete according to the manufacturer's instructions and recommended application techniques.

The compound should include a slip-resistant additive. Apply the curing compound at a uniform interval after each pour to maintain a consistency in finished coloration.

Use admixture designed for use and compatibility with colored concrete pigments. Do not use calcium chloride or admixtures containing chlorides. Use the same admixtures for colored concrete pavement throughout the project.

The change in any material ingredient in the concrete may require a new mock-up be constructed for the Engineer's approval.

Joint fillers shall be selected to match the integral colors selected for the project.

Equipment. Imprinting tools shall be used for texturing freshly placed concrete in a pattern/texture as approved by the Engineer. Tools are to be used according to the manufacturer's instructions.

General. This work shall be according to Sections 503 and 606 of the Standard Specifications and the following:

Colored concrete mixes for the entire project are to be consistent. If additional water is added to the colored concrete once a truck is on site, this concrete will be rejected.

Cover and protect adjacent construction and concrete from discoloration and spillage during placement and curing of colored concrete. Remove and replace discolored concrete as Engineer directs.

Uniformly apply liquid release agent onto the colored, still plastic state concrete to provide clean release of imprinting tools from the concrete surface without lifting imprint or rearing concrete.

The Contractor shall monitor the setting of the concrete. Once the concrete is ready for imprinting, the Contractor shall accurately align and place the imprinting stamps uniformly pressing or pounding the imprint tools to produce the required pattern and depth of imprint on the concrete surface. Remove platform tools immediately. Hand texture and stamp edges and surfaces unable to be imprinted with the stamping mats. Touch up imperfections such as broken corners, double imprints, and surface cracks.

Do not cure colored concrete using plastic sheeting unless necessary due to weather conditions. Plastic sheeting shall not be laid directly on top to the concrete as discoloration will occur. Plastic shall be suspended above the concrete.

All completed areas of colored concrete shall be of consistent color and appearance and must meet the approval of the Engineer. Any finished areas that are rejected by the Engineer shall be removed and replaced by Contractor at no additional cost to the Department.

Method of Measurement. PCC sidewalk shall be measured for payment in place per square foot.

Basis of Payment. This work shall be paid for at the contract unit price per SQUARE FOOT for STAMPED COLORED PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH.

STAMPED COLORED PORTLAND CEMENT CONCRETE CROSSWALK, 9 3/4 INCH

Description. This work consists of constructing integrally colored PCC crosswalks with imprinted pattern, surface hardener, cure, and cure/sealer, as shown the plans. The work shall be in accordance with the applicable portions of Section 420, as indicated herein and as directed by the Engineer.

Submittals. Manufacturer's data sheets shall be submitted on each product to be used, including preparation instructions, storage and handling requirements, and installation methods.

Quality Assurance. The installer shall provide a qualified foreman or supervisor who has a minimum of three years experience with imprinted and textured concrete, and who has successfully completed at least five imprinted concrete installation of high quality and similar in scope to that required. The concrete shall be cast-in-place on the job site by trained and experienced workers. Obtain materials from the same source for all colored and imprinted work. The Contractor shall provide a technical representative from the color supplier for the first day of concrete placement to assist in concrete batching and job site finishing and curing.

Sample Panel Mock-Up. Prior to beginning work, provide field samples of integrally colored Portland cement concrete with imprinted pattern, surface hardener, and cure/sealer. Samples to be 48 inches by 48 inches, 9 3/4" inch thick with surface colors and patterns specified. Do not proceed with work until the workmanship, pattern, color, and sheen are approved by the Engineer. Refinish mock-ups or provide additional samples as required to obtain the Engineer's approval.

Materials. Provide all material in accordance with Section 503 of the Standard Specifications. The pattern to be used shall be herringbone brick with a single course pattern and the color to be used shall be 2.5YR2/8 from the Munsell color chart or a close approximation. A color hardener will be required. Final pattern and color selections to be approved by the Engineer.

Construction. Contraction joints shall be saw cut, with 2" depth at 10 feet on center. The cross walks shall have a 12" wide hand tooled edge that is cast integrally with the cross walk as shown on the detail on the plans.

The base under the crosswalks shall match the proposed thickness and composition of the adjacent pavement base. The base shall be paid for separately at the contract pay items for the adjacent pavement.

The concrete mix design for all crosswalks shall be integrally colored. The pay item's use shall determine the class of concrete in accordance with Section 1020 of the Standard Specifications, with the exception that the minimum cement factor shall be 6.05 cwt. The coarse aggregate to be used shall contain no more than 2% by weight of deleterious materials. Deleterious materials shall include substances whose disintegration is accompanied by an increase in volume which may cause spalling of the concrete.

Integral coloring admixture shall be a non-fading synthetic oxide pigment meeting ASTM C979. Add integral color according to the manufacturer's instructions.

Color hardener shall be applied to the surface of the concrete according to the manufacturer's instructions and recommended application techniques.

Form release agent shall be a liquid membrane-forming clear curing compound conforming to AASHTO M148, type 1. Apply a separate curing and sealing compound for integrally colored concrete according to the manufacturer's instructions and recommended application techniques. The compound should include a slip-resistant additive. Apply the curing compound at a uniform interval after each pour to maintain a consistency in finished coloration.

Use admixture designed for use and compatibility with colored concrete pigments. Do not use calcium chloride or admixtures containing chlorides. Use the same admixtures for colored concrete pavement throughout the project.

The change in any material ingredient in the concrete may require a new mock-up be constructed for the Engineer's approval.

Joint fillers shall be selected to match the integral colors selected for the project.

Equipment. Imprinting tools shall be used for texturing freshly placed concrete in a pattern/texture as approved by the Engineer. Tools are to be used according to the manufacturer's instructions.

General. This work shall be according to Sections 503 and 606 of the Standard Specifications and the following:

Colored concrete mixes for the entire project are to be consistent. If additional water is added to the colored concrete once a truck is on site, this concrete will be rejected.

Cover and protect adjacent construction and concrete from discoloration and spillage during placement and curing of colored concrete. Remove and replace discolored concrete as Engineer directs.

Uniformly apply liquid release agent onto the colored, still plastic state concrete to provide clean release of imprinting tools from the concrete surface without lifting imprint or rearing concrete.

The Contractor shall monitor the setting of the concrete. Once the concrete is ready for imprinting, the Contractor shall accurately align and place the imprinting stamps uniformly pressing or pounding the imprint tools to produce the required pattern and depth of imprint on the concrete surface. Remove platform tools immediately. Hand texture and stamp edges and surfaces unable to be imprinted with the stamping mats. Touch up imperfections such as broken corners, double imprints, and surface cracks.

Do not cure colored concrete using plastic sheeting unless necessary due to weather conditions. Plastic sheeting shall not be laid directly on top to the concrete as discoloration will occur. Plastic shall be suspended above the concrete.

All completed areas of colored concrete shall be of consistent color and appearance and must meet the approval of the Engineer. Any finished areas that are rejected by the Engineer shall be removed and replaced by Contractor at no additional cost to the Department.

Method of Measurement. This work shall be measured for payment in place per square foot. The area measured shall include the stamped colored concrete and the 12" hand tooled edge.

Basis of Payment. This work shall be paid for at the contract unit price per SQUARE FOOT for STAMPED COLORED PORTLAND CEMENT CONCRETE CROSSWALK, 9 3/4 INCH, which price shall include all labor, material and equipment required to construct the new stamped colored PCC crosswalk as specified herein and as shown on the plans or as directed by the Engineer.

RAISED REFLECTIVE PAVEMENT MARKER, REFLECTOR REMOVAL

Effective: August 1, 2023

Description. This work shall be completed in accordance with Section 783 of the Standard Specifications. This work shall consist of removing the reflector unit from existing raised reflector pavement markers that will remain in place at the end of construction activities. Existing reflectors that conflict with revised traffic patterns shall be removed immediately to facilitate a change in lane assignment. If darkness or inclement weather prohibits the removal operations, such operation shall be resumed the next morning of when weather permits.

The base casting shall remain in place in areas where no pavement rehabilitation is required, therefore only the reflector shall be removed. Debris from the removal operations shall be removed from the pavement prior to opening the roadway to traffic.

Basis of Payment. This work will be measured for payment at the contract unit price per EACH for RAISED REFLECTIVE PAVEMENT MARKER, REFLECTOR REMOVAL. Payment shall be full compensation for materials, labor and equipment required to complete this work.

RAISED REFLECTIVE PAVEMENT MARKER, REFLECTOR REPLACEMENT

Effective: August 1, 2023

Description. This work shall be completed in accordance with Section 781 of the Standard Specifications. This work shall consist of reinstallation of reflectors into the raised pavement marker castings upon completion of staging in which the markers were in conflict with temporary lane usage.

Basis of Payment. This work will be measured for payment at the contract unit price per EACH for RAISED REFLECTIVE PAVEMENT MARKER, REFLECTOR REPLACEMENT. Payment shall be full compensation for materials, labor and equipment required to complete this work.

COLUMN-SUPPORTED GROUND IMPROVEMENT

Description. This work shall consist of furnishing design calculations, shop drawings, materials, and labor necessary to construct column-supported ground improvements, over the approximate horizontal limits below the footing, wall, or embankment as specified on the contract plans, or as modified by the Contractor's approved design.

Submittals. No later than 30 days prior to beginning work, the Contractor shall submit to the Engineer for approval the following information:

- (a) A detailed description of the selected ground improvement system, including engineering theory and system advantages specific to the project.
- (b) Evidence of the selected subcontractor's successful installation of the selected ground improvement system on five projects under similar site conditions using the same installation technique. The documentation to be submitted shall include a description of the project, installation technique, soil conditions and name and phone number of contracting authority.
- (c) Evidence that the proposed project superintendent for the ground improvement installation has a minimum of three years of method specific experience.
- (d) Shop Drawings sealed by an Illinois licensed professional engineer showing horizontal improvement limits, locations, pattern, spacing, diameters, top and bottom elevations, and identification numbers. If an aggregate drainage layer is specified on the plans or a working platform proposed by the Contractor, the thickness, aggregate gradation, and plan dimensions shall be shown in addition to any other details needed to describe the work. If an aggregate drainage layer or load transfer platform are necessary for the design and/or long-term performance of the system, they are the responsibility of the Contractor and must be included in the design submittal. If no load transfer platform is deemed necessary by the Contractor, a statement should be made in the design as to why this design feature is not necessary.
- (e) A description of the equipment, installation technique and construction procedures to be used, including a plan to address any water or spoils.
- (f) The source and gradation of the aggregate proposed for the selected improvement.
- (g) Design computations, sealed by an Illinois licensed professional engineer, demonstrating the proposed ground improvement plan satisfies the minimum global stability, settlement, and bearing capacity performance requirements stated in the contract plans and those contained in this special provision.
- (h) The proposed verification program methods to monitor and verify the system installation is satisfying the design and performance requirements. Also required is a sample of the daily report form to be used by the Contractor to documents the adequacy of that day's work.

Materials. The aggregate used in ground improvements shall be class A quality crushed stone or crushed concrete satisfying the requirements of Section 1004 of the standard specifications. The aggregate for any drainage layer specified in the plans shall be a combination of one or more of the following gradations, FA1, FA2, CA5, CA7, CA8, CA11, or CA13 thru 15, according to Sections 1003 and 1004 of the Standard Specifications. Any fine or coarse aggregate requested by the Contractor to be used as either a drainage layer or working platform shall be approved by the Engineer. Any deviations from these aggregates must be presented in writing and approved

by the Engineer prior to design approval. Grout used in the ground improvements shall be per manufacturer's recommendations and shall meet the requirements of Section 503 of the Standard Specifications. The mix design for the grout shall be submitted to the Engineer for review and approval.

Design Criteria. The subcontractor selected shall provide a ground improvement plan with shop drawings, and design computations, using an allowable stress design that meets the performance requirements shown on the contract plans. These requirements normally include the global stability factor of safety, tolerable settlement amounts at various times and in the case of walls or structure footings, the equivalent uniform service bearing pressure applied at various locations and the factor of safety required. In the absence of performance requirements shown on the plans, the following allowable stress minimum performance requirements shall be used:

- (a) A factor of safety of 1.5 against global slope stability failure.
- (b) A factor of safety of 2.5 against equivalent uniform service bearing pressure failure.
- (c) Total settlement not to exceed 4 inches and settlement after completing wall or pavement construction not to exceed 1 inch.

If secondary, or additional improvements, such as prefabricated vertical drains (PVDs), pre-loading with or without additional fill materials, or any other system are required to achieve the state design criteria they are the responsibility of the Contractor. Details of these secondary systems must be included in the shop drawings, design computations, and all descriptions of the proposed improvement plan.

The design shall use short term strength parameters for the soil, obtained from the soil boring logs and any geotechnical laboratory testing data provided in the contract plans and specifications for stability and bearing capacity analyses. Settlement shall be assessed using appropriate soil parameters. Any additional subsurface information needed to design the aggregate columns shall be the responsibility of the Contractor.

The ground improvement design need not consider seismic loadings unless otherwise required as part of the performance requirements shown on the plans.

Construction. The construction procedures shall be determined by the installer and submitted for approval with the shop drawings. The following are the minimum requirements that the Contractor will be expected to follow unless otherwise approved in the shop drawings submittal.

- (a) The site shall be graded as needed for proper installation of the aggregate column system. Any grading and excavation below the improvement limits shown on the plans shall be incidental to the ground improvement.
- (b) Any granular base drainage layer or working platform shall be considered incidental to the improvement. Contractor requested drainage layers or working platforms will only be allowed if approved as part of the shop drawings.
- (c) The material shall be placed in a manner that allows measurement of the tonnage or quantity of aggregate, grout, and or/concrete placed.
- (d) Columns shall be installed in a sequence that will minimize ground heave. Any heaving shall be re-compacted or excavated as directed by the Engineer prior to wall or

embankment construction and be considered incidental to aggregate column improvement.

- (e) The Contractor shall provide a full-time qualified representative to verify all installation procedures and provide the verification program.
- (f) Disposal of any spoils generated shall be according to Article 202.03.
- (g) If an obstruction is encountered that cannot be penetrated with reasonable effort, the Contractor shall construct the element from the depth of obstruction to its design top elevation. Depending on the depth of the completed column, column location, and design requirements, the Engineer may require the construction of a replacement column at an adjacent location. Construction of additional columns will be considered extra work and paid for according to Article 109.04.
- (h) Specific Requirements for Vibrator Compacted Columns improvements:
 - i. Vibrator compacted columns shall be constructed with a down-hole vibrator, probe and follower tubes of sufficient size to install the columns to the diameter and bottom elevation(s) shown on the approved shop drawings. Pre-boring is permitted if approved as part of the shop drawing submittal.
 - ii. The probe and follower tubes shall have visible markings at regular increments to enable measurement of penetration and re-penetration depths.
 - iii. Provide methods for supplying to the tip of the probe a sufficient quantity of air or water to widen the probe hole to allow adequate space for aggregate or grout placement around the probe.
 - iv. The vibrator shall be withdrawn in 12 to 36 inch increments, to allow placement of the aggregate or grout.
 - v. Lift thickness shall not exceed 4 ft. After penetration to the treatment depth, slowly retrieve the vibrator in 12 to 18 inch increments to allow aggregate or grout placement.
 - vi. Compact the aggregate in each lift by re-penetrating it as needed with the vibrating probe to densify and force the aggregate radially into the surrounding soil. Re-penetrate the aggregate in each increment a sufficient number of times to construct the columns as specified in the approved shop drawings and to meet the verification program requirements.
- (i) Specific Requirements for Tamper Compacted (Rammed) Columns:
 - i. Tamper compacted (rammed) columns shall be installed by either drilling or displacement methods, capable of constructing columns to the diameters and bottom elevation(s) shown on the approved shop drawings.
 - ii. If temporary casing is needed to limit the sloughing of subsurface soils, the casing should be inserted to at least 2 ft beyond any sloughing strata. Upon extraction, the bottom of the casing shall be maintained at not more than 2 feet above the level of aggregate.
 - iii. Aggregate or grout placement shall closely follow the excavation of each column. The aggregate or grout shall be placed in 1 to 2 ft thick lifts. Each lift should be rammed with a high-energy impact tamper as specified in the approved shop drawings and to meet the verification program requirements.

Construction Tolerances. The improvement shall be constructed to the following tolerances:

- (a) The horizontal limits and center of each constructed column shall be within 8 inches of the location specified on the approved the shop drawings.
- (b) The axis of the constructed columns shall not be inclined more than 1.67% from vertical.
- (c) The installed diameter of any column shall not be more than 10% below the effective diameter indicated on the approved shop drawings.
- (d) The average effective diameter of any group of 50 consecutively installed columns shall not be less than the effective diameter indicated on approved shop drawings.
- (e) The top of the ground improvement shall be located within 8 inches of the top elevation shown on the approved shop drawings. When supporting MSE walls, the top elevation may need to be adjusted to the base of the MSE reinforced mass elevation as shown on the approved MSE shop drawings.
- (f) Except where obstructions, hard or very dense soils are encountered, the column shall be advanced to at least the treatment depth elevation shown on the approved in the shop drawings.

Any column installation not meeting the above stated tolerances, or otherwise deemed unsatisfactory by the Engineer, may require installation of a replacement column(s) at the discretion of the Engineer and at the Contractor's expense. The Contractor shall submit to the Engineer revised plans and procedures to bring installations in those areas into tolerance.

Verification Program. The Contractor shall develop and maintain a monitoring and documentation procedure during the installation of all columns to verify they satisfy the design and performance requirements. The Contractor shall provide qualified personnel to continuously observe and record the required data. The program shall include, as a minimum, the following:

- 1. Quality control procedures to allow verification that each column is being installed according to the designer's specifications and the requirements in this special provision. This will typically include observations of items such as electrical current or hydraulic pressure, number of high-energy impact tamps, aggregate quantity, etc. that must be obtained to achieve the performance requirements.
- 2. Monitoring methods to evaluate the performance of the global improvement system after construction of the overlying embankment or wall. This will typically include installation of settlement plates and may also include monitoring points, inclinometers, piezometers or other instrumentation.
- 3. Proposed means and methods for verification that the installed columns meet the strength and/or stiffness criteria required by the design. This may include modulus or load tests on individual elements and/or groups, soil borings, and other methods.
- 4. A daily report form shall be completed by the Contactor and provided to the Engineer to document the work performed each day and the adequacy of each column. The form shall be signed by the Contractor's qualified personnel and include as a minimum the following:
 - i. Columns installed (identified by location number).
 - ii. Date constructed.
 - iii. Elevation of top and bottom of each column.
 - iv. Average lift thickness.

- v. Results of quality control testing such as average power consumption or tamping energy obtained during column installation.
- vi. Jetting pressure (air or water) if applicable.
- vii. Description of soil and groundwater conditions.
- viii. Details of obstructions, delays and any unusual issues.
- ix. Amount of water used per column if applicable.
- x. Estimated weight or volume of backfill, grout, and/or concrete placed in each column.
- xi. Average installed diameter of each column.

Basis of Payment. This work will be paid at the contract unit price per LUMP SUM for AGGREGATE COLUMN GROUND IMPROVEMENT. Any temporary casing, excavation, disposal of water or spoils, drainage layers or working platforms will not be paid for separately, but shall be considered to be included with this work.

MAILBOX REMOVE AND REPLACE

Description. This work shall consist of relocating existing mailboxes located at locations specified on the plans to a suitable alternate location approved by the Engineer and the Postmaster. Temporary or permanent relocation of mailboxes that are not specified on the plans but conflict with the Contractor's desired operations shall be treated according to Article 107.20.

Construction Requirements. Contractor shall remove the existing mailbox from its current location and set it in concrete with a minimum depth of 2'-0" below finished grade with a casing diameter of 12" centered about the post.

General Requirements. Should the existing post already be set in a concrete foundation, this pay item shall include removal of the existing 4"x4" post from the mailbox and replacing it with a new post. The existing post and foundation shall be fully excavated and disposed of as part of this item. Alternatively, if the existing mailbox support post does not allow for replacement with a nominal depth of 2'-0" below grade, the 4"x4" shall be replaced with a new post.

Based on the timing of the Contractor's excavation operations, this mailbox may require placement at one or more temporary locations prior to final placement. These temporary locations do not need to be set in concrete but must be anchored in such a way that it is upright and stable for mail delivery.

Multiple temporary relocations shall not be paid for separately but considered included in the cost of this pay item.

If during removal and relocation, the Engineer deems that the existing mailbox cannot safely be relocated, the Contractor shall utilize a new mailbox, approved by the Engineer and the Postmaster, with new 4"x4" post and concrete foundation.

Basis of Payment. This work will be paid for at the contract unit price per EACH for MAILBOX REMOVE AND REPLACE which shall include all time, materials, and labor to complete the excavation and relocation of the mailbox, including any/all new mailboxes, wooden support posts, concrete, and material disposals.

PILLAR REMOVAL

Description. This item consists of removing and disposing of existing brick pillars and foundations within limits of the project as necessary to facilitate construction activities, and where directed by the Engineer, including foundations and footings. Where existing improvements are removed from unpaved areas, any remaining hole shall be backfilled with earth and compacted. Where existing improvements are removed from paved areas, any remaining hole shall be backfilled with an aggregate approved by the Engineer and compacted.

Method of Measurement and Basis of Payment. This work will be paid for at the contract unit price for EACH for PILLAR REMOVAL, which price shall include all labor, materials and equipment necessary to complete the work as specified herein.

PARKING LOT PAVEMENT REMOVAL

Description. This work shall consist of the removal and disposal of the existing parking lot pavement of all types (PCC or HMA), at the locations noted in the plans and in accordance with this special provision. The removal shall conform to Section 440 of the Standard Specifications.

Method of Measurement. Parking lot pavement removal will be measured for payment in place and the area computed in square yards.

Basis of Payment. This work will be paid for at the contract unit price per SQUARE YARD for PARKING LOT PAVEMENT REMOVAL. This price shall include all labor, equipment and material needed to complete the work as specified above and as shown in the plans.

FENCE REMOVAL

Description. This work shall consist of removing and disposing the existing fence of all kinds as shown in the plans, unless included within other items or otherwise directed by the Engineer. The fence may be existing fence left from previous contracts. The removal of gates installed along sections of existing fence is considered under this item. Existing fence and gates include wrought iron, wood, steel aluminum or chain link fence installations.

Construction Requirements. No removal work shall be completed without the approval of the Engineer. All associated hardware and appurtenances of the existing fence including but not limited to post foundations, fittings, gates, post, and accessories, shall be removed off-site and disposed of by the Contractor in a legal disposal site. Any part of the fence that is damaged that is not called out for to be removed shall be replaced at the Contractor's expense.

Contractor shall not damage the existing buildings adjacent to the fence. Any damage to the building shall be repaired by the Contractor at no additional cost to the Department.

Any posts identified to remain must be protected from damage during the removal of adjacent fence or gates.

Method of Measurement. Fence removal shall be measured for payment in feet and measured along the top of the fence from center to center of end post, including the length occupied by gates.

Basis of Payment. This work will be paid for at the contract unit price per FOOT for FENCE REMOVAL, at the specified locations. Additionally, this price shall include all equipment, labor, and materials necessary to remove and dispose of the existing fence of all kinds, including but not limited to wrought iron, wood, steel aluminum, or chain link installations and their associated fence hardware, and appurtenances.

RETAINING WALL REMOVAL

Description. This work shall consist of all materials and labor necessary to remove portions of existing segmental block or cast-in-place concrete retaining walls at the locations shown on the plans and specified herein. This work shall follow the requirements in Section 501 of the Standard Specifications except as herein modified.

Existing plans are not available for the retaining walls between Sta. 117+10 and Sta. 119+00 (IL 47). All portions of the segmental block wall and the reinforced concrete foundation of the existing walls that conflict with the proposed drainage, shared-use path or other project improvements shall be removed. The existing cast-in-place concrete retaining wall at Sta. 139+02, LT (McConnell Rd) shall be completely removed in accordance with Section 501.04.

Method of Measurement. This work will be measured for payment in place and the length computed in linear feet.

Basis of Payment. This work will be paid for at the contract unit price per FOOT for RETAINING WALL REMOVAL. The unit price shall include all labor, tools, equipment, and incidentals to complete the work as specified.

REMOVE EXISTING FLARED END SECTION

Description. This work consists of the removal and proper disposal of existing flared end sections at the locations shown in the plans.

Method of Measurement. This work will be measured and paid for at the per each for removal of each existing flared end section.

Removal of existing pipe culverts will be paid for separately.

Basis of Payment. This work will be paid for at the contract unit price per EACH for REMOVE EXISTING FLARED END SECTION. This price shall include all labor, equipment and material needed to complete the work as specified above and as shown in the plans.

CONCRETE HEADWALL REMOVAL PARTIAL

Description. This work shall consist of all materials and labor necessary to remove portions of the existing concrete headwall surrounding the CMP and metal flared end sections (FES) for the two 60" dia. existing pipes noted 66A and 66B shown on the drainage plans and specified herein. This work shall follow the requirements in Section 501 of the Standard Specifications except as herein modified.

The existing reinforced concrete surrounding the CMP and FES shall be removed to within 3-feet of the existing edge of pavement for the private driveway. The existing railing along the private driveway shall remain in place.

Prior to partial removal of the concrete headwall, a 3/4 in. deep saw cut shall be made a minimum of 3ft from the existing edge of pavement for the private driveway. When saw cutting or removing concrete, the Contractor shall take care to avoid damage to the southern existing 60" CMP to remain in place.

Any damage to the headwall portions remaining in service shall be repaired as directed by the Engineer. Any damage to the existing railing to remain shall be repaired at the expense of the Contractor in accordance with Section 509.

Method of Measurement. This work shall be measured per each unit removed. The headwalls surrounding existing pipes 66A (Sta. 153+78) and pipe 66B (Sta. 153+90) shall each be considered a separate unit for removal.

Basis of Payment. This work will be paid for at the contract unit price per EACH for CONCRETE HEADWALL REMOVAL PARTIAL. The unit price shall include all labor, tools, equipment, and incidentals to complete the work as specified.

Removal of the existing metal, flared end sections shall be paid for as Existing Flared End Section.

BOX CULVERT REMOVAL

Description. This work shall consist of all materials and labor necessary for the complete removal of the existing 3' x 2' box culvert and concrete headwalls at Sta. 118+50 as shown on the plans and specified herein. This work shall follow the requirements in Section 501 of the Standard Specifications except as herein modified.

Method of Measurement. This work will be measured in place along the invert of the culvert and the length computed in linear feet.

Basis of Payment. This work will be paid for at the contract unit price per FOOT for BOX CULVERT REMOVAL. Removal of the concrete headwalls shall not be paid for separately but shall be included in the cost of the box culvert removal. The unit price shall include all labor, tools, equipment, and incidentals to complete the work as specified.

CONCRETE STEP REMOVAL

Description. This work shall consist of all materials and labor necessary for the removal and disposal of the existing concrete steps at the locations shown on the plans. Removal shall include saw cutting and all existing material removal, including buried portions of the concrete stairs below existing grade. Disposal shall be according to the requirements of Article 202.03 and Section 501 of the Standard Specifications.

Basis of Payment. This work will be paid for at the contract unit price per EACH for CONCRETE STEP REMOVAL, which price shall include all labor, tools, equipment, and incidentals to complete the work as specified.

CONCRETE STEPS

Description. This work shall conform to Sections 202, 351, 503, and 508 of the Standard Specifications. Concrete steps shall be constructed to the details and grades indicated in the plans and, when necessary, adjusted in the field per the Engineer's direction.

Method of Measurement. Concrete steps shall be measured based on the plan dimensions for the steps and the volume computed in cubic yards of concrete.

Basis of Payment. This work will be paid for at the contract unit price per CUBIC YARD for CONCRETE STEPS. The unit price shall include all labor, tools, equipment, and incidentals to complete the work as specified.

The included subbase material and reinforcement bars shall not be measured separately for payment and shall be considered incidental to this pay item.

COFFERDAM (TYPE 1) (IN-STREAM/WETLAND WORK) (D1)

Effective: January 1, 2019

Revised: August 15, 2022

Description. This work shall be performed in accordance with Section 502.06 of the Standard Specifications, except as herein modified. The work shall consist of the preparation of an in-stream/wetland work plan and the installation, maintenance, removal and disposal of the temporary cofferdam(s) to isolate the work area from water within regulated wetlands and Waters of the U.S. (WOUS) in accordance with the authorized U.S. Army Corps of Engineers (USACE) Section 404 Permit and the General Conditions of the current Nationwide Permit Program.

Materials. Materials shall be in accordance with the USACE Section 404 Permit and General Conditions of the current Nationwide Permit Program.

Construction Requirements. Construction shall be in accordance with Article 502.06(a) of the Standard Specifications and in accordance with the authorized USACE Section 404 Permit. For cofferdam - type 1, it is anticipated the design will be based on the flow requirement as shown in the plans and per the General Conditions of the current Nationwide Permit Program.

The Contractor shall be responsible for diverting the water flow from the construction area using a method meeting the approval of the Engineer and in accordance with the authorized USACE Section 404 Permit and General Conditions of the current Nationwide Permit Program.

This project requires a USACE Section 404 Permit prior to the start of work. All conditions of the Section 404 Permit must be followed. As a condition of the Section 404 Permit, the Contractor will be required to submit an in-stream/wetland work plan to the Department for approval. The USACE defines and determines in-stream/wetland work within the WOUS.

Guidelines on acceptable in-stream/wetland work techniques can be found on the USACE website: <https://www.lrc.usace.army.mil/Missions/Regulatory/Illinois/IL-Nationwide-Permits/>

Method of Measurement. This work will be measured per each where each is defined as a plan detailed stage of bridge, culvert or other construction for which a temporary in-stream cofferdam(s) is required. If staged construction is not detailed/specified on the plans, this work will be measured as a total of one each.

Basis of Payment. This work will be paid for at the contract unit price per EACH for COFFERDAM (TYPE 1) (IN-STREAM/WETLAND WORK).

STORM SEWER ADJACENT TO OR CROSSING WATER MAIN (D1)

Effective: February 1, 1996

Revised: January 1, 2007

This work consists of constructing storm sewer adjacent to or crossing a water main, at the locations shown on the plans. The material and installation requirements shall be according to the latest edition of the "Standard Specifications for Water and Sewer Main Construction in Illinois", and the applicable portions of Section 550 of the Standard Specifications; which may include concrete collars and encasing pipe with seals if required.

Pipe materials shall meet the requirements of Sections 40 and 41-2.01 of the "Standard Specifications for Water and Sewer Main Construction in Illinois", except PVC pipe will not be allowed. Ductile-Iron pipe shall meet the minimum requirements for thickness class 50.

Encasing of standard type storm sewer, according to the details for "Water and Sewer Separation Requirements (Vertical Separation)" in the "Standard Drawings" Division of the "Standard Specifications for Water and Sewer Main Construction in Illinois", may be used for storm sewers crossing water mains.

Basis of Payment: This work will be paid according to Article 550.10 of the Standard Specifications, except the pay item shall be Storm Sewer (Water Main Requirements), of the diameter specified.

ADJUSTMENTS AND RECONSTRUCTIONS (D1)

Effective: March 15, 2011

Revised: October 1, 2021

Revise the first paragraph of Article 602.04 to read:

“602.04 Concrete. Cast-in-place concrete for structures shall be constructed of class SI concrete according to the applicable portions of Section 503. Cast-in-place concrete for pavement patching around adjustments and reconstructions shall be constructed of class PP-2 concrete, unless otherwise noted in the plans, according to the applicable portions of Section 1020.”

Revise the third, fourth and fifth sentences of the second paragraph of Article 602.11(c) to read:

“Castings shall be set to the finished pavement elevation so that no subsequent adjustment will be necessary, and the space around the casting shall be filled with class PP-2 concrete, unless otherwise noted in the plans, to the elevation of the surface of the base course or binder course. HMA surface or binder course material shall not be allowed. The pavement may be opened to traffic according to Article 701.17(e)(3)b.”

Revise Article 603.05 to read:

“603.05 Replacement of Existing Flexible Pavement. After the castings have been adjusted, the surrounding space shall be filled with class PP-2 concrete, unless otherwise noted in the plans, to the elevation of the surface of the base course or binder course. HMA surface or binder course material shall not be allowed. The pavement may be opened to traffic according to Article 701.17(e)(3)b.”

Revise Article 603.06 to read:

“603.06 Replacement of Existing Rigid Pavement. After the castings have been adjusted, the pavement and HMA that was removed, shall be replaced with class PP-2 concrete, unless otherwise noted in the plans, no less than 9 in. thick. The pavement may be opened to traffic according to Article 701.17(e)(3)b.

The surface of the class PP concrete shall be constructed flush with the adjacent surface.”

Revise the first sentence of Article 603.07 to read:

“603.07 Protection Under Traffic. After the casting has been adjusted and the class PP concrete has been placed, the work shall be protected by a barricade and two lights according to Article 701.17(e)(3)b.”

DRAINAGE AND INLET PROTECTION UNDER TRAFFIC (D1)

Effective: April 1, 2011

Revised: April 2, 2011

Add the following to Article 603.02 of the Standard Specifications:

- “(i) Temporary Hot-Mix Asphalt (HMA) Ramp (Note 1) 1030
- “(j) Temporary Rubber Ramps (Note 2)

Note 1. The HMA shall have maximum aggregate size of 3/8 in. (95 mm).

Note 2. The rubber material shall be according to the following.

| Property | Test Method | Requirement |
|-----------------------------|-------------|----------------|
| Durometer Hardness, Shore A | ASTM D 2240 | 75 \pm 15 |
| Tensile Strength, psi (kPa) | ASTM D 412 | 300 (2000) min |
| Elongation, percent | ASTM D 412 | 90 min |
| Specific Gravity | ASTM D 792 | 1.0 - 1.3 |
| Brittleness, °F (°C) | ASTM D 746 | -40 (-40)° |

Revise Article 603.07 of the Standard Specifications to read:

“603.07 Protection Under Traffic. After the casting has been adjusted and the class PP concrete has been placed, the work shall be protected by a barricade and two lights according to Article 701.17(e)(3)b.

When castings are under traffic before the final surfacing operation has been started, properly sized temporary ramps shall be placed around the drainage and/or utility castings according to the following methods.

- (a) Temporary Asphalt Ramps. Temporary HMA ramps shall be placed around the casting, flush with its surface and decreasing to a featheredge in a distance of 2 ft around the entire surface of the casting.
- (b) Temporary Rubber Ramps. Temporary rubber ramps shall only be used on roadways with permanent posted speeds of 40 mph or less and when the height of the casting to be protected meets the proper sizing requirements for the rubber ramps as shown below.

| Dimension | Requirement |
|---|---|
| Inside Opening | Outside dimensions of casting + 1 in. (25 mm) |
| Thickness at inside edge | Height of casting \pm 1/4 in. (6 mm) |
| Thickness at outside edge | 1/4 in. (6 mm) max. |
| Width, measured from inside opening to outside edge | 8 1/2 in. (215 mm) min |

Placement shall be according to the manufacturer's specifications.

Temporary ramps for castings shall remain in place until surfacing operations are undertaken within the immediate area of the structure. Prior to placing the surface course, the temporary ramp shall be removed. Excess material shall be disposed of according to Article 202.03."

TELEVISION INSPECTION OF SEWER

Description. This work will consist of televising the storm sewer and combined sewer systems before and after construction as specified in the contract drawings.

Requirements. The Contractor must furnish a videotape of a televised inspection of the interior of all existing storm and combined sewers which may be impacted during construction under this contract. Record the videotape under the supervision of the Engineer. Perform two sessions of videotaping of the sewer before construction and prior to the placement of final wearing surface.

The name, phone number, and contact person of the firm which will be performing the videotaping of the sewer must be provided by the Contractor at the pre-construction meeting.

Clean all sewers prior to videotaping before construction. The final acceptance of the sewer shall be based on the sewer videotape. All deficiencies exposed on the videotape must be corrected by the Contractor within 30 calendar days of notification. All costs incurred by the Contractor to make the required repairs are to be borne solely by the Contractor. The Contractor is required to re-videotape the sewer to verify that the deficiencies noted on any previous videotape have been corrected to the satisfaction of the Department or Engineer. All costs to re-videotape the sewer, regardless of the number of times required, will be borne solely by the Contractor.

Every effort is to be made by the Contractor to correct all deficiencies prior to the placement of the final wearing surface. If, in the opinion of the Engineer, the Contractor has delayed in submitting the videotape, the placement of the final wearing surface may be suspended. No time extension will be granted due to this suspension and the Engineer will be sole judge as to any delays.

Include location maps, legends and descriptions on all videotape submittals. Two copies of each submittal are required.

Method of Measurement. This work will be measured for payment in sewer televising per foot for the videotaping of the sewer before construction and prior to placement of the final wearing surface.

Basis of Payment. This work will be paid for at the contract unit price per FOOT for the TELEVISION INSPECTION OF SEWER.

The cleaning of sewers prior to videotaping before construction shall be paid for as Storm Sewers To Be Cleaned, of the diameter specified.

ABANDON AND FILL EXISTING STORM SEWER

Description. This work shall consist of filling existing sewers that are to be abandoned at the locations and sizes shown on the Plans or as directed by the Engineer.

Construction Requirements. Based on a review of available information it is believed that there are no existing active connections draining into the pipe to be abandoned. However, before the pipe is abandoned, the Contractor must field verify there are no existing active connections draining into the pipe to be abandoned. In the event there are existing active connections, the Contractor must either re-route the existing active connection or maintain the existing pipe so as not to block flow from the existing active connections at no additional cost.

After field verification there are no existing active connections draining into the pipe to be abandoned, the Contractor must plug the pipe with class SI concrete or brick and suitable mortar to the satisfaction of the Engineer, and fill the remaining empty length of pipe with controlled low-strength material. The CLSM must meet material requirements of Article 593.02.

Method of Measurement. This work will be measured for payment in feet for the pipe to be abandoned in place.

Basis of Payment. This work will be paid for at the contract unit price per FOOT for ABANDON AND FILL EXISTING STORM SEWER which price shall include all materials, labor, tools and equipment, backfilling of any excavation necessary at locations shown in the plans, as specified herein, and as directed by the Engineer.

CLEANING EXISTING SEWERS AND DRAINAGE STRUCTURES

Description. All existing storm sewers and combined sewers shall be considered as sewers insofar as the interpretation of this special provision is concerned. When specified for payment, the location of the sewer to be cleaned will be shown on the plans. All existing sewers which are specified to be cleaned on the plans will be cleaned according to Article 602.15 of the Standard Specifications.

Method of Measurement. This work will be measured for payment in feet for the length of sewer that is to be cleaned.

Basis of Payment. This work will be paid for at the contract unit price per FOOT for STORM SEWERS TO BE CLEANED, of the diameter specified.

MANHOLES, TYPE A, WITH 2 TYPE 1 FRAME, CLOSED LID, RESTRICTOR PLATE

Description. This work shall consist of the construction and installation of a type A manhole of the diameter specified and restrictor plate, with frame and grate specified in accordance with Sections 602 and 1006 of the Standard Specifications and the plans and/or as directed by the Engineer. Construction shall conform to the details shown in the plans and all applicable portions of Sections 602 and 1006 of the Standard Specifications.

Method of Measurement. This work will be measured for payment, in place, in units of each.

Basis of Payment. This work will be paid for at the contract unit price per EACH for MANHOLES, TYPE A, 6'-DIAMETER, WITH 2 TYPE 1 FRAME, CLOSED LID, RESTRICTOR PLATE or MANHOLES, TYPE A, 8'-DIAMETER, WITH 2 TYPE 1 FRAMES, CLOSED LID, RESTRICTOR PLATE.

STEEL CASINGS

Description. This work shall consist of furnishing and installing water main casing pipe in an excavated trench as shown on the plans or directed by the Engineer in the field. The casing pipe shall meet AWWA Standard C900 water main quality pipe as defined by the Standard Specifications for Water and Sewer Main Construction in Illinois, 8th edition.

At locations shown on the plans and where directed by the Engineer, casing pipe extensions shall be attached to existing casing pipes. Casing pipe extensions shall be of the same size and material as the casing pipe to be extended. Connection shall be made by a means appropriate for the casing pipe material and acceptable to the Engineer.

The water main shall be centered in the casing pipe and have a minimum three casing spacers placed per length, following manufacturer's recommendations. Spacers shall be configured to provide restraint against utility pipe movement due to flotation. The spacers shall be stainless steel. The casing pipe diameter shall be determined by the Contractor to accommodate the proposed water main pipe and the spacers.

Additionally force mains and water mains shall be installed with self-restraining casing spacers that provide axial thrust restraint to prevent pipe joint separation. Restrained casing spaces shall be provided at all pipe joints.

The Contractor shall submit shop drawings of the casing pipe and spacers to the Engineer for approval prior to ordering material.

The ends of the casing pipe shall be grouted closed with concrete masonry and mortar.

Water main installed inside the casing pipe shall be paid for under the appropriate water main pay item.

Method of Measurement. Casing pipe will be measured for payment in place in feet from one end of the casing pipe to the opposite end of the casing.

Basis of Payment. This work shall be measured and paid for at the contract unit price per FOOT for STEEL CASINGS of the size indicated.

DUCTILE IRON SLEEVE

Description. This work shall consist of installing ductile iron sleeves on the water distribution system while making a connection from the proposed water main to the existing water main for modifications of the type and size specified as shown on the plans.

Tapping Sleeves:

1. Use two-piece bolted sleeve ductile iron or stainless-steel type with mechanical joints.
2. Provide joint accessories.
3. Measure existing water main outside diameter to determine proper tapping sleeve size

Acceptable Manufacturers:

1. Ductile iron: McWane Ductile F-5205.
2. Stainless steel: Cascade CST extra heavy duty.

Tapping Valves:

1. Use fully ported gate valves complying with AWWA C500.
2. Use mechanical joints type, McWane Ductile F-5093.

Basis of Payment. This work will be paid for at the contract unit price per EACH for DUCTILE IRON SLEEVE of the size specified.

DUCTILE IRON WATER MAIN

Description. This work shall include the furnishing of all labor and materials required for the construction of ductile iron pipe water main of the required inside diameter constructed as specified herein. This work will be in accordance with the applicable portions of Section 561 of the Standard Specifications, the Standard Specifications for Water and Sewer Construction in Illinois, and the following provisions.

Installation of Water Main. Install all ductile iron water main, fittings, and appurtenances in accordance with pipe manufacturer's instructions and in compliance with AWWA C600.

1. Protect all pipe, fittings, fire hydrants, auxiliary valve boxes, buried valves, valve boxes, and corporation stops by loose wrapping with polyethylene sheeting or tubing.
 - a. Place polyethylene sheet around the entire circumference of the pipe, tie or tape sheet securely to prevent displacement during backfilling.
 - b. Wrap copper service lines to a point 3 feet from center of water main.
 - c. Do not block fire hydrant weep hole.
2. Install conductivity through joints by use of conductivity wedges or copper cable and taps.
 - a. Use two wedges per joint for pipes 12 inches or smaller, and four wedges per joint for pipe sizes larger than 12 inches.

- b. Use number of copper cable connectors per joint as recommended by the pipe manufacturer.
3. Provide and install locator wire for the total length of pipe installed in open cut trenches, plus additional wire/cable to leave a 10-foot loop of cable in the adjacent valve vault and through any casing pipe.
 - a. Hang loop of cable inside valve vaults on a stainless steel eye hook with expansion anchor.
4. The water main shall be laid with the minimum cover of 5'- 6" measured from the top of the pipe to finished grade or as indicated on the plans. The trench width shall be ample to permit the pipe to be laid and jointed properly and the backfill to be placed and compacted.
5. Protect all pipes by loose wrapping them with polyethylene sheeting or tubing.
 - a. Place polyethylene sheet around the entire circumference of the pipe, tie or tape sheet securely to prevent displacement during backfilling.
 - b. Polyethylene Encasement: All buried ductile iron pipe and fittings shall be encased in polyethylene conforming to the requirements of ANSI A21.5 (AWWA C105). The polyethylene encasement shall be provided by the ductile iron pipe manufacturer and installed per the manufacturer's recommendation.
 - Thickness: Linear Low-density polyethylene film (minimum 8 mils) or High-density cross laminated polyethylene film (minimum 4 mils).
 - Markings: The following information shall be clearly marked on the sheet at minimum increments of 2-feet along its length.
 - Manufacturers name or trademark.
 - Year of Manufacture.
 - Min. film thickness and material type (LLDPE or HDCLPE).
 - Applicable range of nominal pipe diameter size(s).
 - Warning - Corrosion Protection - Repair Any Damage.

Testing. The City of Woodstock Public Works shall be present for any testing. All construction and testing of the water main and related appurtenances shall conform to the applicable requirements of Section 41 of the Standard Specifications for Water and Sewer Construction in Illinois. Testing shall take place for the entire length of water main constructed and shall consist of the following tests:

- Pressure Test
- Leakage Test

The pressure and leakage tests for all water mains will be conducted at a pressure of 150 psi. Tapped plugs with temporary flushing risers may be required for testing the water main. Proper blocking must be in place during testing. All water mains and appurtenances shall be tested at 150 psi for a two-hour period. The leakage test shall be completed in accordance with Section 41-2.14C of the Standard Specifications for Water and Sewer Construction in Illinois.

All testing shall be completed prior to the removal of the existing main. The Engineer shall be notified prior to the execution of any testing procedure. Should the Contractor fail to notify the

Engineer, the tests shall be repeated under the Engineer's supervision at the Contractor's expense.

All water mains and appurtenances shall be sterilized before they are put into service. The installer is responsible for sterilizing the mains and shall, under the supervision of a representative of the City, take samples which are to be submitted to a state approved testing laboratory for bacteriological analysis. Acceptable bacteriological tests shall be required before the water mains will be permitted to be out into service. Disinfection of the water main shall conform to Section 41-2.15 of the Standard Specifications for Water and Sewer Construction in Illinois. The Engineer shall be notified prior to any disinfection-related work. Cost to provide all testing and disinfection shall be included in the price of water main in accordance with the Standard Specifications for Water and Sewer Construction in Illinois.

Final Connections to Existing Mains. Water mains and appurtenances must be completely installed, flushed, disinfected, and satisfactory bacteriological sample results received prior to permanent connections being made to the active distribution system. Sanitary construction practices must be followed during installation of the final connection, so that there is no contamination of the new or existing water main with foreign material or groundwater.

- a. Connections equal to or less than one pipe length (18 ft): New pipe, fittings, and valve(s) required for the connection may be spray-disinfected or swabbed with a minimum 1-5% solution of chlorine just prior to being installed, if the total length of the connection from the end of a new main to the existing main is equal to or less than 18 ft.
- b. Connections greater than one pipe length (>18 ft): Pipe required for the connection must be set up aboveground, disinfected, and bacteriological samples taken, as described in Section 5 of AWWA C651-99 if the total length of the connection from the end of a new main to the existing main is greater than 18 ft. after satisfactory bacteriological sample results have been received for the "predisinfected" pipe, the pipe can be used in connecting the new main to the active distribution system. Between the time the satisfactory bacteriological sample results are received and the time that the connection piping is installed, the ends of the piping must be sealed with plastic wraps, watertight plugs, or caps.

Chlorination. Before being placed into service, all new water mains shall be chlorinated in accordance with Sections 41-2.15 of the "Standard specifications for water and sewer main construction".

Method of Measurement. This work shall be measured per lineal foot for ductile iron water main of the size indicated on the plans and as specified herein. Measurement shall be along the centerline of the pipe, and shall extend through fittings, valves, and other water system appurtenances.

Basis of Payment. This work will be paid for at the contract unit price per FOOT for DUCTILE IRON WATER MAIN installed of the size indicated, which payment will be full compensation for all materials, labor, tools, equipment and incidentals necessary to install the water main pipe, fittings, and appurtenances. This work shall include excavation (except rock excavation), bedding, backfilling with and compacting of trench backfill material, thrust blocks, restrained joint fittings and devices, tracer wire, testing and disinfection, shut-downs, caps and plugs, dewatering, protection and repair of utilities, locating existing water mains and services, providing temporary

water services to residents, removal and disposal of surplus excavated material, sawcutting, removal and disposal of pavements and other surface features, cutting and abandonment of existing water mains (except CLSM fill), and clean-up.

Trench backfill be paid for separately.

It is noted that the plans indicate the general vertical and horizontal location of the proposed main.

The Contractor is required to provide and install all fittings, bolts, gaskets, sleeves, adaptors, and other required materials to make a complete installation for which no additional payment will be made.

DUCTILE IRON WATER MAIN (TRENCHLESS)

Description. This work shall consist of excavating the bore and receiving pits, providing the necessary equipment based on method, materials based on method, and labor required for installing water main as sized specified, by trenchless methods as shown on the details in the plans.

Construction Methods. The method used for trenchless installation of the proposed ductile iron water main in areas shown on the plans shall be at the Contractor's option. Most commonly used construction methods would be auger boring, and pipe jacking for new construction technologies and similar work. The Contractor shall take on the sole responsibility to visit the site to become familiar with site conditions that may affect cost, progress, performance, and preferred method of the work to be performed. The Contractor to provide the necessary shop drawings of the preferred trenchless installation method to be used, equipment, and included materials but not limited to, restrained joint, casing spacers (as required and approved manufacture by City), casing pipe (as required and approved manufacture by City), and casing end seals (as required and approved manufacture by City).

Method of Measurement. This work shall be measured per linear foot of ductile iron water main (trenchless) as specified in plans.

Basis of Payment. The work will be paid for at the contract unit price per FOOT for DUCTILE IRON WATER MAIN (TRENCHLESS) of the diameter specified, which shall include, equipment based on method, materials based on method, all excavation, trench shoring if necessary and disposal of material and surplus excavated material from the trench, trench backfill, dewatering, and all other labor and equipment necessary to complete the work as indicated in the plans..

WATER VALVES

Description. This work shall consist of installation of water valves of the size specified and shall consist of the installation of gate valves, complete in place, installed as a part of the water main installation, at locations indicated on the plans.

Valves shall be of ductile iron body, bronze fitted, modified wedge disc, resilient seat type, with non-rising stem and O-ring packing, and conform to the latest revised standards of AWWA C500, AWWA C509, and AWWA C515 Standards.

Acceptable manufacturers and products:

- Clow Mechanical Joint Resilient Wedge – 6100 Series – Open Left
- Mueller Mechanical Joint Resilient Seat – 2360 Series – Open Left
- AFC Mechanical Joint Resilient Wedge – 2500 Series – Open Left

The Contractor shall provide catalog cuts for all appurtenant items pertaining to water valves prior to the start of construction for approval by the Engineer.

Method of Measurement. This work shall be measured per each valve as sized specified.

Basis of Payment. This work will be paid for at the contract unit price per EACH for WATER VALVES of the size and configuration indicated, which payment will be full compensation for all fittings, materials, labor, tools, equipment and incidentals necessary.

Valve vaults shall not be included for payment under this item, and will be paid separately.

VALVE VAULTS

Description. The water valves (gate or butterfly valves) shall be suitable for ordinary water works service, intended to be installed in a normal position on buried pipelines for water distribution systems.

All main valves shall be installed in precast concrete vaults conforming to ASTM C478 as detailed in the Valve Vault Detail and Pressure Connection Detail. All vaults for newly constructed water main shall have flexible rubber watertight pipe connectors. Pressure connection taps/vaults shall seal the pipe entrances for the existing pipe with anti-hydro cement as shown in the plan details.

Valve vault frames shall be Neenah R-1530 and lids shall be a “Neenah” type 1, or equivalent, with the word “WATER” stamped into the lid.

Each valve vault cone and barrel section joint shall also be externally sealed with a 9" wide (min.) sealing band of rubber and mastic. The band shall have an outer layer of rubber or polyethylene with an under layer of rubberized mastic (with a protective film), meeting the requirements of ASTM C-877, type II or type III.

All Valve vaults are to include two 1" corporation stop coupling (MUELLER B-25008) or approved equal for testing and flushing purposes as indicated on the Pressure Connection Detail and Valve Vault Detail. Valve vaults shall be reinforced concrete in accordance with ASTM C478. The casting shall be as specified in the plans.

Blocking to prevent movement of mains under pressure at bends and fittings shall be PCC, a minimum of 12-inches thick pre-cast blocks, placed between solid ground and the fittings in such a manner that pipe fittings and joints will be accessible for repairs. All bends of 22 ½ degrees or greater, and all tees and plugs shall be thrust protected to prevent movement of the line under pressure. Thrust protection may also be attained by the use of a combination of mechanical retaining glands and threaded stainless steel rods. Wood blocks or shims will not be allowed for thrust blocking. The cost of thrust blocking is to be considered as included in the cost of the item being installed.

Pressure connections are paid for separately.

Method of Measurement. This work shall be measured per each valve vault with specified diameter with special frame and lid.

Basis of Payment. This work will be paid for at the contract unit price per EACH for VALVE VAULTS, of the size specified, TYPE 1 FRAME, CLOSED LID, which price shall include installing the valve vault, trench backfill, and backfill material as detailed on the plans.

FIRE HYDRANTS TO BE REMOVED

Description. This work shall consist of the removal of existing fire hydrants, including signs, auxiliary valves and boxes, and plugging and blocking of abandoned water main as indicated on the plans or required by the Engineer. The existing fire hydrants are not to be removed until after the new fire hydrants have been installed and satisfactorily tested. The fire hydrants to be removed shall become the property of the City of Woodstock and shall be delivered to the Public Works Facility. Fire hydrants determined not to be salvaged by the City shall be disposed of offsite by the Contractor in accordance with Article 202.03. The Contractor is to bag any existing or new fire hydrants that are not in use.

Construction Requirements. The City shall be notified a minimum of one week in advance of the required shutdown. Trench backfill for this item will not be paid for separately but shall be included in the cost of this item.

Method of Measurement. This work shall be measured per each fire hydrants removed.

Basis of Payment. This work will be paid for at the contract unit price per EACH for FIRE HYDRANTS TO BE REMOVED, which price shall include excavation, fire hydrant and auxiliary valve removal coordination with City with delivery as needed, or disposal, mechanical joint caps or plugs to plug the lead-in tee, aggregate backfill, and all labor, material and equipment necessary to perform the work as specified.

FIRE HYDRANTS WITH AUXILIARY VALVE AND VALVE BOX

Description. This work shall consist of furnishing and installing new fire hydrants in accordance with the Standard Specifications for Water and Sewer Construction in Illinois and the details in the plans at locations shown on the plans or as directed by the Engineer.

Materials. All fire hydrants shall be equipped with 5 1/4" valve opening, three-way hose connections to include two 2 1/2" nozzles with NST, and one STORZ fitting with locks and caps. Hydrants shall be one piece construction from the traffic breakaway flange to the shoe. The shoe shall have mechanical joints. Operating nuts shall open to the left in a counterclockwise direction. Hydrants shall be connected to water mains with a six-inch pipe and an auxiliary gate valve with ductile iron valve box.

Approved manufacturers and products:

- Clow Medallion
- Mueller Centurion
- Waterous Pacer

The Contractor shall provide catalog cuts for all appurtenant items for the fire hydrant assembly for approval by the Engineer prior to the start of construction.

Construction Requirements. All fire hydrants that have yet to be approved for use must be covered and identified as being "NOT IN SERVICE". Identification bags shall be N.I.S. BAGS. N.I.S. BAGS shall be made of 27" x 42" x 4 mil rugged polypropylene material, orange in color and in bold print clearly show in very large, easy-to-read print the words "NOT IN SERVICE". Tie Straps shall be provided to firmly secure bags to the hydrant. If the bag is removed for flushing, testing, or for any other reason prior to full operation, it shall be re-bagged.

Direct connection of the auxiliary valve to the water main tee may be required as directed by the Engineer and approved by the City.

Fire hydrants shall be rodded to the tee for the hydrant lead. All costs associated with providing thrust blocking shall be considered incidental to the cost of construction.

The center of the fire hydrant shall be set at the locations indicated on the plans. All hydrants shall be oriented so that the pumper nozzle faces the roadway. All hydrants and any required adjustment fittings shall receive one coat of rustproof base federal safety red paint prior to final Engineer acceptance.

Basis of Payment. This work will be paid for at the contract unit price per EACH for FIRE HYDRANT WITH AUXILIARY VALVE AND VALVE BOX, which price shall be payment in full for all labor and materials required to complete the installation including auxiliary valve and cast-iron valve box and adjusting the barrel length to provide 18 to 24 inches between the pump nozzle and ground.

DOMESTIC WATER SERVICE BOXES TO BE REMOVED

Description. This work shall be done in accordance with the special provision and specification shown on the plans and construction details. Domestic water service boxes to be removed shall consist of the complete removal of the existing domestic water service valve boxes at the location shown on the plans and as directed by the Engineer. The water service boxes that are salvageable shall become the property of the City. Water service boxes determined not to be salvaged by the City shall be disposed of offsite by the Contractor in accordance with Article 202.03.

Method of Measurement. This work shall be measured per each domestic water service boxes removed.

Basis of Payment. This work will be paid for at the contract unit price per EACH for DOMESTIC WATER SERVICE BOXES TO BE REMOVED. This work shall include all labor, equipment and material to complete the work, including removal of domestic water service boxes, excavation, protection and repair of existing utilities, plugging pipes, saw cutting, removal and disposal of existing pavements, excavation, removal and disposal of surplus excavated material; and clean-up. Trench backfill, per Section 208 of the Standard Specifications, needed to complete the removal shall be considered as included in the cost of this work.

WATER MAIN LINE STOP

Description. This work shall consist of the installation of a temporary line stop in an existing water main complete, including locating of existing main; sawcutting, and removal and disposal of existing pavements; excavation; removal and disposal of waste excavated materials; protection, repair, or replacement of existing utilities; dewatering, including erosion and sedimentation control methods and devices to provide protection to the environment from all pumping operations; sheeting; shoring; tapping of pipe to install temporary line stop bladder; installation of line stop; and temporary fencing, barricades and other items needed to provide traffic control and protection and to protect excavation while new valve is being installed.

All manufacturer specifications and submittals shall be submitted to the Engineer for review and approval prior to installation. All materials shall meet applicable AWWA and ASTM standards.

Construction. Prior to placing the line stop, the water main to which the insertion valve apparatus will be attached to shall be disinfected with chlorine. The line stop sleeve shall be disinfected with chlorine. The work of this pay item includes removal of the line stop bladder, and capping of the tapping valve; backfilling of the excavation with compacted granular trench backfill material; but does not include surface restoration.

All temporary line stops and miscellaneous components shall be free from defects or contamination, and wherever possible shall be the standard product of the manufacturer. All line stops shall be provided as shown in the plans, schedules, and as specified herein. Line stops shall be approved by City of Woodstock prior to installation.

Basis of Payment. This work will be paid for at the contract unit price per EACH for WATER MAIN LINE STOP of the size specified.

WATER SERVICE CONNECTION (RESIDENTIAL)

Description. The work under these items consists of installing a new water service to replace the existing service to the limits of the right of way or easement as shown on the plans or as directed by the Engineer. This work shall be performed in accordance with 41-2.11 of the Standard Specifications for Water and Sewer Main Construction (latest edition), except as modified herein. Replacement of service will not be allowed without prior approval from the Engineer.

Location: The location (road address – west/east side) of water service connection (residential) is summarized within the water service tag sheet/information tabulations shown on sheet labeled Water Main Service Tags within the project plans.

The terms “short” and “long” indicate to which side of the street the service must be extended (with “short” services being on the same side of the street centerline as the water main, and “long” services being on the opposite side of the street centerline from the water main, and should not be used to differentiate between the variances in lengths of individual services. Additional service connection “type” are described as the following within the tabulations mentioned above per each location identified:

W.S.C.S. = Water Service Connection (Short); and
W.S.C.L. = Water Service Connection (Long).

Water services shall be potholed by the Contractor as necessary at the ROW or near existing water valve (B-Box) to verify existing water service size, location, and depth. In addition, the Contractor shall assess and review any potential conflicts with existing/proposed utilities as shown on the plans with existing/proposed horizontal and vertical alignment of the water service.

In general, the existing water service size, condition, and type are unknown at this time and adjustments in the field may be necessary to adapt from one size to another. The new services to be installed are to be 1” minimum per plan and adapters/reducers may be required in the field to adjust/reduce to existing size and per the location agreed upon with the plumbing inspector.

Each service installed shall be fabricated of seamless copper tubing conforming to ASTM B88 and ASTM B251, Type K, PEX or PE-RT tubing, designated for underground service. The tubing shall be marked with the manufacturer’s name or trademark, and a mark indicating the type and grade of material. The outside diameter of the pipe shall conform to that listed in ASTM B251, Table 2. The service tubing is to be installed in continuous lengths between the corporation tap and the water service box.

The curb stop shall be Mueller B-25155 or A.Y. McDonald 76104-Q. The Contractor may need to provide a 1” to ¾” adapter for some of the residential service connections. If the water service box is in the sidewalk or driveway, the water service is to be adjusted. This may require relaying some of the existing water service before the curb stop. Any pipe or fittings necessary to relocate the water service box will be considered included in the cost of proposed water service connection.

The water service box shall be installed in a true vertical position and the top shall be adjusted flush with the finished grade. Removal and disposal of the existing water service box will be considered included in the cost of the proposed water service connection.

The water service tap shall include a full circle stainless steel tapping sleeve.

Service connections must maintain a 3 foot separation from any other service connection, pipe bell or fitting, valve vault, and/or fire hydrant. Approved corporation stop manufacturers include Mueller, A.Y. McDonald, and Ford for inside diameters of 1" through 2".

House connections to the new water main shall be made individually and in as short a time as possible after testing and disinfection. No water customer shall be without water in excess of two hours and shall be notified prior to disconnecting service.

Long service connection shall be defined as a service that is on the opposite side of the street from the new water main. Long service connections must be augered and pushed unless otherwise approved by the Engineer. Short service connection shall be defined as a service that is on the same side of the street from the new water main.

Service lines shall be flushed until water runs clear or minimum 20 seconds. The Contractor shall hire a licensed plumber to connect the homeowner's water service to the new curb stop.

The City of Woodstock Water Superintendent or his/her designate must witness the tap/connection to water main. 24-hour advance notice is required. The City must be notified one week in advance of this work to have time to properly notify residents. No existing water service may be shut down without the consent of the Engineer.

An Illinois licensed plumber will be required to be present during, and to inspect, all proposed water service line connections to existing water service lines and water mains.

Method of Measurement. This work shall be measured per each water service connection of the type specified.

Basis of Payment. This work will be paid for at the contract unit price per EACH for WATER SERVICE CONNECTION (LONG) or WATER SERVICE CONNECTION (SHORT) for RESIDENTIAL service connections, which price includes all labor, tools, equipment and material including excavation, potholing, disconnection of the existing service, trench backfill, disposal of waste excavated material, copper line, curb stop, corporation stop, water service box at the required elevation, any necessary adapters and all other material necessary to complete the work as specified.

WATER SERVICE CONNECTION (COMMERCIAL)

Description. The work under these items consists of installing a new water service to replace the existing service to the right of way or easement as shown on the plans or as directed by the Engineer. This work shall be performed in accordance with 41-2.11 of the Standard Specifications for Water and Sewer Main Construction (latest edition), except as modified herein. Replacement of service will not be allowed without prior approval from the Engineer.

Location: The location (road address – west/east side) of water service connection (commercial) is summarized within the water service tag sheet/information tabulations shown on sheet labeled Water Main Service Tags within the project plans.

The terms “short” and “long” indicate to which side of the street the service must be extended (with “short” services being on the same side of the street centerline as the water main, and “long” services being on the opposite side of the street centerline from the water main, and should not be used to differentiate between the variances in lengths of individual services. Additional service connection “type” are described as the following within the tabulations mentioned above per each location identified:

W.S.C.S. = Water Service Connection (Short); and
W.S.C.L. = Water Service Connection (Long).

Water services shall be potholed by the contractor as necessary at the ROW or near existing water valve to verify existing water service size, location, and depth. In addition the Contractor shall assess and review any potential conflicts with existing/proposed utilities as shown on the plans with existing/proposed horizontal and vertical alignment of the water sewer service.

In general, the existing water service size, condition, and type are unknown at this time and adjustments in the field may be necessary to adapt from one size to another. The new services to be installed are to be 4” in size per plan and adapters/reducers may be required in the field to adjust/reduce to existing size and per the location agreed upon with the plumbing inspector.

The assumption for existing water service is 4” per plan for domestic/fire supply and could vary from 4” or as noted on the plans could be expected based on existing field conditions found. If a larger size is found in the field, the Contractor is to notify the City and match the existing size of the water service found. In addition, if the licensed state plumber deems it necessary to upsize the service based on existing conditions or existing service demand the contractor is to accommodate the size on a case-by-case basis which may be limited.

Each water service installed shall consist of all ductile iron water main quality pipe, fittings, and appurtenances in accordance with pipe manufacturer's instructions and in compliance with AWWA standards.

The Contractor may need to provide size adapters for some of the commercial service connections. If the water service box is in the sidewalk or driveway, the water service is to be adjusted. This may require relaying some of the existing water service before the water service. Any pipe or fittings necessary to relocate the water service box will be considered as included in the cost of proposed water service connection.

The water service box shall be installed in a true vertical position and the top shall be adjusted flush with the finished grade. Removal and disposal of the existing water service box will be considered included in the cost of the proposed water service connection.

The water service connection shall be a manufactured fitting as part of the water main installation.

Service connections must maintain a 3 foot separation from any other service connection, pipe bell or fitting, valve vault, and/or fire hydrant.

Commercial business connections to the new water main shall be made individually and in as short a time as possible after testing and disinfection. No water customer shall be without water in excess of two hours and shall be notified prior to disconnecting service.

Long service connection shall be defined as a service that is on the opposite side of the street from the new water main. Long service connections must be augered and pushed unless otherwise approved by the Engineer. Short service connection shall be defined as a service that is on the same side of the street from the new water main.

Service lines shall be flushed until water runs clear or minimum 20 seconds. The Contractor shall hire a licensed plumber to connect the commercial water service to the new water valve/shutoff.

The City of Woodstock Water Superintendent or his/her designate must witness the tap/connection to water main. 24-hour advance notice is required. The City must be notified one week in advance of this work to have time to properly notify residents. No existing water service may be shut down without the consent of the Engineer.

An Illinois licensed plumber will be required to be present during, and to inspect, all proposed water service line connections to existing water service lines and water mains

Method of Measurement. This work shall be measured per each water service connection of the type specified for commercial connections.

Basis of Payment. This work will be paid for at the contract unit price per EACH for WATER SERVICE CONNECTION (LONG) or WATER SERVICE CONNECTION (SHORT) for COMMERCIAL connections. The price shall include all labor, tools, equipment and material including excavation, potholing, disconnection of the existing service, trench backfill, disposal of waste excavated material, service material, water service box and water valve size based on existing conditions or minimum requirements as stated, at the required elevation, any necessary adapters, and all other material necessary to complete the work as specified and intended.

CUT AND CAP EXISTING WATER MAIN

Description. This work shall consist of cutting and capping existing water main at the locations shown on the plans or as directed by the Engineer and City.

Water mains shall be abandoned in place by saw cutting the main at the point to be abandoned/capped and installing a mechanical joint plug or cap. The Contractor shall be responsible for dewatering the trench as needed, which cost is considered as included in the cost of Cut and Cap Existing Water Main. Caps shall be ductile iron and equipped with rubber gaskets to prevent the infiltration of water and/or sediment. Installation of caps or plugs must be witnessed by the City of Woodstock, or its authorized representative, prior to backfilling.

This work includes locating the existing water main, excavation and removal and disposal of excavated material, sheeting as required, temporary fencing of the work site as required, and backfilling of the excavation to the existing sub grade.

The work shall be performed in accordance with the Standard Specifications for Water and Sewer Main Construction in Illinois (latest edition), and the requirements of the Engineer. Excavation and backfill for water main removal shall conform to the typical sections shown in the plans and shall conform to the provisions of Sections 20, 21, and 22 of the Standard Specifications for Water & Sewer Main Construction in Illinois (latest edition).

The cutting and capping of the existing water main shall be completed prior to placing the water main back in service and shall be done in accordance with the construction requirements of the special provision "Connection to Existing Water Main" contained herein.

Blocking to prevent movement of lines under pressure at bends, tees, caps, valves, plugs and hydrants shall be a minimum 12" thick precast PCC block, placed between undisturbed soil and the fittings, and shall be anchored in such a manner that pipe and fitting joints will be accessible for repairs. The cost of thrust blocking is considered included in the cost of the item being installed.

Method of Measurement. This work shall be measured per each cut and cap existing water main.

Basis of Payment. This work will be paid for at the contract unit price for EACH for CUT AND CAP EXISTING WATER MAIN at the size specified. The price shall include locating the existing water main, cutting of the existing water main, excavation and removal and disposal of excavated material, sheeting as required, the mechanical join cap, temporary fencing of the work site as required, and trench backfilling of the excavation to the existing sub grade, all labor, tools, and equipment necessary to complete the work as specified

CONNECTION TO EXISTING WATER MAIN

Description. The Contractor shall perform cut-in connections to the existing water main at locations shown on the drawings and in the manner detailed.

Connecting to the existing water main will require interruption of services. The City, the Engineer, and the Contractor shall mutually agree upon a date and time which will allow ample time to assemble labor and materials and to notify all customers affected. Customers shall be notified at least 24 hours but not more than 48 hours prior to being taken out of service.

The Contractor shall not operate valves on existing mains. Valves will be closed and opened only by the employees of the City.

The Contractor shall expose the water main to be connected to and shall confirm the size and type of piping present. The Contractor shall obtain the necessary materials required to make a proper connection. The Contractor shall coordinate prior to making any connections with the City on any boil orders that are to be issued and flow the City's protocol, or sequencing of the connection to existing water main operation. The Contractor shall not proceed until he has all the required materials on site. The Contractor shall limit the time for connections on the specified diameter lines to four hours. In no case, shall a customer(s) be out of service overnight.

Once the new water mains have been tested and approved for service, then the Contractor shall, under the direction of the Engineer and/or City, place the new water main in service.

The entire length of water main of the specified diameter placed out of service for the purpose of making the connections of the proposed water main to the existing water main shall be disinfected before the existing water main is returned to service.

Couplings shall be installed to connect to existing water mains where indicated on the drawings. Couplings shall be ductile iron with stainless steel bolts and nuts. Couplings shall meet requirements to accommodate a working pressure of 150 psi.

Connections to existing asbestos water main shall be made with Smith-Blair 461, Ford FC2W and Cascade transition couplings, both with alloy bolts and fusion bonded epoxy coating. Couplings shall be included to the connection to existing water main.

Method of Measurement. This work shall be measured per each connection to existing water main for specified diameter.

Basis of Payment. This work will be paid for at the contract unit price per EACH for CONNECTION TO EXISTING WATER MAIN for specified diameter, which price shall include all equipment, labor, disposal of abandoned pipe, rounded stone bedding, brick and mortar the abandoned water main, backfilling the void left, and other materials (not listed for payment separately) required to properly connect to existing water mains. One connection to existing water main will be paid for each location where a coupling is used to connect new water main to the existing water main. Fittings required for these connections will be considered in the cost of this work. Trench backfill used while connecting to the existing water main shall be considered in the cost of this work. Dewatering, if required, shall be considered included in the cost of the contract.

PRESSURE CONNECTION

Description. The Contractor shall perform pressure connections to the existing water main at locations shown on the drawings. These connections shall be made without taking the existing water main out of service. This work shall be performed in accordance with the details in the plans and in accordance with Section 46 of the Standard Specifications for Water and Sewer Main Construction (Latest Edition), except as revised herein.

Bolts and nuts shall be stainless steel. Ductile iron tapping sleeves shall be Clow F-5205 , or Engineer approved equal. Stainless Steel tapping sleeves shall be Cascade CST extra heavy duty or Clow F-5205, or Engineer approved equal. The tapping valves shall be fully ported gate valves complying with AWWA C500. Use mechanical joint type, Clow F-5093 or approved equal. 1" Mueller corporation stops are required on each side of valves.

The Contractor shall obtain the necessary materials required to make a proper connection. The Contractor shall not proceed until he has all the required materials on site.

Once the new water mains have been tested, chlorinated and approved for service by the City then the Contractor shall, under the direction of the Engineer and/or City, place the new water main in service.

Dewatering, if required, shall be considered included in the cost of Pressure Connection.

Pressure connections are to also include one 1" corporation stop coupling (MUELLER B-25008) or approved equal for testing and flushing purposes as indicated in the Pressure Connection Detail and Vave Vault Detail. Pressure connection taps/vaults shall seal the pipe entrances for

the existing pipe with anti-hydro cement. valve vaults, type A, 5'-diameter, type 1 frame, closed lid, and valve vaults, type A, 6'-diameter, type 1 frame, closed lid structures are paid separately.

Method of Measurement. This work shall be measured per each pressure made to existing water main.

Basis of Payment. This work will be paid for at the contract unit price per EACH for PRESSURE CONNECTION, of size specified, which price shall include all equipment, labor, disposal of abandoned pipe, rounded stone bedding, abandon the existing water main, backfilling the void left, manhole adjustments, and other materials (not listed for payment separately) required to properly connect to existing water mains. One pressure connection to existing water main will be paid for each location where a tapping sleeve and valve is used to connect new water main to the existing water main. Ductile iron fittings and trench backfill required for these connections shall be considered incidental to this item.

REMOVE EXISTING VALVE AND VAULT

Description. This item shall consist of the removal of the existing valve and vaults, as shown on the plans. Removal shall include the excavation and physical removal and disposal of the valve and vaults.

For valve and vaults located outside the limits of the roadway, the removal shall include the excavation and physical removal of the structures and backfilling the void left by the valve vaults with earthen backfill.

For valve and vaults located within the limits of the roadway, the removal and replacement of the asphalt pavement shall be paid for separately at the contract unit price of the required items. The removal shall include the excavation and physical removal of the valve vaults or boxes and backfilling the void left by the valve vaults or boxes with trench backfill. Trench backfill needed to complete the removal shall be considered included in the cost of Remove Existing Valve and Vault.

Construction Requirements. This work shall be in accordance with the applicable articles of Section 605 of the Standard Specifications and construction details shown on the plans. The work shall include all labor, equipment, and material necessary to remove valve boxes and cut and cap/plug any existing lines.

The removed valve and vault shall be removed from the site and disposed of properly. Disposal shall be included in the cost of this item. Removal of existing valve and vaults shall not be completed until the proposed watermain is tested, sanitized and live - meaning all services have been transferred to the new main and all tie-ins to the existing water main have been completed deactivating the existing water main scheduled to be abandoned or removed.

The excavated areas that are within 2-feet of proposed paved areas shall be backfilled with trench backfill material.

Method of Measurement. This work shall be measured per each valve vault to be removed.

Basis of Payment. This work will be paid for at the contract unit price per EACH for REMOVE EXISTING VALVE AND VAULT, which includes all necessary labor, tools, equipment, and materials necessary to remove the existing valve and vaults in accordance with the plans and specifications, including dewatering of abandoned line, cutting and removing sections of pipe, capping or plugging pipes, and backfilling with earth or trench backfill material, protection, replacement or repair of utilities, drainage systems, removal and disposal of surplus excavated material, and clean up.

VALVE BOXES TO BE REMOVED

Description. This work shall consist of removing existing valves and valve boxes as indicated on the plans. Removal shall include the excavation and physical removal and disposal of the valve boxes. The work shall be performed in accordance with the applicable articles of Section 605 of the Standard Specifications and construction details shown on the plans. The work shall include all labor, equipment, and material necessary to remove valve boxes and cut and cap/plug any existing lines.

The removed valve box shall be removed from the site and disposed of properly. Disposal shall be included in the cost of this item. Removal of existing valve boxes shall not be completed until the proposed watermain is tested, sanitized and live - meaning all services have been transferred to the new main and all tie-ins to the existing water main have been completed deactivating the existing water main scheduled to be abandoned or removed.

The excavated areas that are within 2-feet of proposed paved areas shall be backfilled with trench backfill material.

Method of Measurement. This work shall be measured per each valve box removed.

Basis of Payment. This work will be paid for at the contract unit price per EACH for VALVE BOXES TO BE REMOVED, which price shall include all labor, tools, equipment and materials necessary to complete the work in accordance with the plans and specifications, including dewatering of abandoned line, cutting and removing sections of pipe, capping or plugging pipes, and backfilling with earth or trench backfill material, protection, replacement or repair of utilities, drainage systems, removal and disposal of surplus excavated material, and clean up.

WATER MAIN TO BE ABANDONED, (FILL WITH CLSM)

Description. This item shall consist of all work necessary to gain access to, prepare and place CLSM in accordance with these specifications and as directed by the Engineer. The CLSM shall be used to fill the abandoned water main pipe as shown on the plans or as directed by the Engineer.

Abandonment or removal of asbestos-cement water main shall be done in accordance with the requirements of the U.S. Environmental Protection Agency (USEPA), the Illinois Environmental Protection Agency (IEPA), and the Occupational Safety and Health Administration (OSHA).

Materials. Materials shall be according to the Standard Specifications for Water & Sewer Construction in Illinois, current edition and meet the requirements of Section 1019 of the Standard Specifications.

Construction Requirements. Construction shall be according to the Standard Specifications for Water & Sewer Construction in Illinois, current edition.

Do not begin abandonment operations until replacement water main and fire hydrants have been constructed and tested, all service connections have been installed, and replacement main is approved for use and in operation.

Until a fire hydrant is physically removed, any hydrant that becomes non-usable during abandonment procedures shall have a heavy-duty cover placed over it and secured and marked "Abandoned" so that fire department personnel know its status.

Flowable fill shall be placed per Section 593.03 and 593.04 of the Standard Specifications. The Contractor shall verify, through site investigation, that the appropriate water main pipe is going to be filled. No functioning pipes, or pipes that are to be removed, shall be filled with CLSM. The Contractor shall make a reasonable attempt, as determined by the Engineer, to ascertain if the abandoned water main pipe has positive grade. The weather and temperature placement requirements of Section 593 of the Standard Specifications shall apply.

If it is determined that the abandoned water pipe to be filled is sufficiently sloped to allow the CLSM to gravity feed the entire length of the pipe, the Contractor shall seal the lower end of the pipe by means suitable to the Engineer. The seal shall be vented such that air voids do not form in the pipe when the CLSM is placed. The CLSM shall be discharged from a mixer into the high end of the abandoned water pipe by any means acceptable to the Engineer. No CLSM shall be placed into the adjacent valve boxes or vaults to render these structures non-functional. After completing the work, both ends of the abandoned pipe should be sealed in a neat, workmanlike manner that is acceptable to the Engineer.

If it is determined that the abandoned water pipe cannot be filled from one end, the Contractor shall fill each end of the pipe, or any intermediate locations as necessary, with CLSM as indicated above. After completing the work, the Contractor shall remove from the project site any excess CLSM that resulted from spillage, etc, and restore the project site to a condition that is acceptable to the Engineer. If excavation is required to reach the abandoned pipe, the Contractor shall restore the area to its original condition as directed by the Engineer.

Backfill excavations shall be in accordance with Article 209.03 of the Standard Specifications.

Method of Measurement. This work will be measured for payment per foot in place.

Basis of Payment. This work will be paid for at the contract unit price per FOOT for WATER MAIN TO BE ABANDONED, of the diameter specified, which price shall include all labor, tools, equipment, materials and incidentals necessary to complete the work as specified.

WATER MAIN REMOVAL

Description. This work shall consist of the removal and legal disposal of existing water main of the size specified at the locations indicated in the plans or as directed by the Engineer. The work shall be performed in accordance with Section 551 and 605 of the Standard Specifications and the Standard Specifications for Water and Sewer Main Construction in Illinois (latest edition), except as revised herein.

Removal and disposal of asbestos-cement pipe (ACP) shall be completed in an acceptable manner and in accordance with 40 CFR, Rule 61.150, paragraphs 3 and 4. All ACP material shall be kept moist during removal and transportation to a proper disposal facility. The Contractor shall provide receipts from the disposal facility acknowledging receipt of the ACP material and the site is a legal disposal site for ACP material.

Excavation and backfill for water main removal shall conform to the provisions of Sections 20 of the Standard Specifications for Water & Sewer Main Construction in Illinois.

The Contractor shall sawcut the existing water main and install a mechanical joint end cap on the end of the existing water main that is to be abandoned in place.

No pipe removed shall be considered as salvage. All material shall be disposed of in accordance with Article 202.03 of the Standard Specifications.

Excavation of trenches shall be performed according to the applicable requirements of Article 550.04. Backfill of trenches shall be performed according to the applicable requirements of Article 550.07. This work will not be paid for separately and shall be considered included in the cost of Water Main Removal for the size specified.

Method of Measurement. This work will be measured for payment in feet, along the pipe to be removed. The length measured will include stops, fittings and valves.

Basis of Payment. This work will be paid for at the contract unit price per FOOT for WATER MAIN REMOVAL, of the diameter specified, or WATER MAIN REMOVAL 14", DIA which price shall include all necessary labor, materials, tipping fees, watering, hauling and equipment to remove and dispose of the existing water main, including ACP water main, as shown on the plans. Trench backfill shall not be measured and paid for separately but shall be included in the cost of this work.

Cutting and capping the existing water main will be paid for separately.

SANITARY SERVICE CONNECTION

Description. The work under these items consists of installing a new sanitary sewer service to the existing property/parcel that may not currently have an existing service or to replace the existing sanitary service up to the right of way line (or easement), as shown on the plans or as directed by the Engineer. Installation will be in accordance with Section 33 of the Standard Specifications for Water and Sewer Construction in Illinois (latest edition). Replacement of service will not be allowed without prior approval from the Engineer.

Location: The location (road address – west/east side) of sanitary sewer service connection is summarized within the sanitary service tag sheet/information tabulations shown on sheet labeled Sanitary Sewer Service Tags within the project plans.

The terms “short” and “long” indicate to which side of the street the sanitary service must be extended (with “short” services being on the same side of the street centerline as the sanitary sewer main, and “long” services being on the opposite side of the street centerline from the sanitary main) and should not be used to differentiate between the variances in lengths of individual services. Additional service connection “type” are described as the following within the tabulations mentioned above per each location identified:

S.S.C.S. = Sanitary Service Connection Short; and
S.S.C.L. = Sanitary Service Connection Long

Service connections on the sanitary main, and the alignment of new services shall be located as necessary to minimize impacts to tree roots and other utilities. Installation of new services shall not be initiated until replacement is completed on the sanitary main. To the extent conditions allow, maintain separation of new sanitary service from water service in accordance with Article 41-2 of the Standard Specifications for Water and Sewer Construction in Illinois (latest edition). The City must be notified one week in advance of this work to have time to properly notify property owners. No existing sanitary service may be shut down without the consent of the Engineer.

Services shall include a new sanitary service line size of 6” minimum or size specified in the plans or found existing in the field. In addition, a new wye or tee connection to the sanitary main, all necessary fittings and any adapters needed to connect the new service to the existing service at the right-of-way line or cap for end of service stub if a new service to vacant property shall be included in the service installation. Contractor shall maintain a sufficient inventory of adapters and couplings which may be needed to accommodate connection of new service pipe to a variety of existing pipe materials and diameters.

Service reconnections to the new sanitary sewer shall be made individually and in as short a time as possible after testing. Owners/Users shall be notified by the Contractor prior to disconnecting service.

Sanitary sewer services shall be potholed by the Contractor as necessary at the ROW to verify existing sanitary sewer service size, location, and depth/invert. In addition the Contractor shall assess and review any potential conflicts with existing/proposed utilities as shown on the plans with existing/proposed horizontal and vertical alignment of the sanitary sewer service. Contractor

may have to perform additional service investigations such as lateral launch televising for service verification and location methods.

Materials. Materials furnished for this work shall be as specified in the details in the plans. Sanitary sewer shall be 6" minimum or size specified in the plans or found existing in the field PVC pipe with a SDR of 26 conforming to ASTM D2241 with gasket joints conforming to ASTM D3212. All supplied pipes and fittings must be from the same manufacturer. Connections to existing sewer lines shall be made using non-shear repair couplings equipped with stainless steel bands. PVC tee and bends used for the drop connection shall be compatible for use with the sewer pipe.

The reconnection of services shall be done with a new PVC wye or tee fitting which will be fabricated to fit the main and the branch service pipe. All supplied fittings and connections must be from the same manufacturer. All connections to existing pipes shall be made with non-shear adjustable repair couplings equipped with stainless steel bands.

Method of Measurement. Each sanitary service connection will be measured for payment as a completed item, including all excavation, potholing methods, service investigations, removal and disposal of waste excavated materials, removal of existing piping, fittings, wyes and tees, protection of adjacent utilities, trench de-watering, connection to sanitary main with new wye or tee, installation of new sanitary service pipe, all necessary fittings and caps as necessary, adaptors, and couplings, terminating the old service, and trench backfill.

Basis of Payment. This work will be paid for at the contract unit price per EACH for SANITARY SERVICE CONNECTION (LONG) or SANITARY SERVICE CONNECTION (SHORT).

SANITARY SEWER SERVICE, 6" PVC, COMPLETE

Description. This work shall consist of extension of or installation of sanitary sewer services from the existing sanitary sewer main with 6" PVC pipe as shown on the plans. This item shall include all necessary materials, pipe, risers, fittings, labor, bypass pumping, excavation, dewatering, bedding, trench backfill, temporary plugs, temporary connections, utility removal/replacement, pavement sawcutting, equipment, supervision and work necessary to complete this work with all necessary appurtenances. This work shall be performed in accordance with Section 33 of the Standard Specifications for Water and Sewer Main Construction (latest edition), except as modified herein.

At locations indicated on the plans, and as required in the field, the Contractor shall install sanitary sewer service pipe, per the details, in order to extend a sanitary service stub from the existing sanitary sewer main to a stubbed end at the public right-of-way line. In locations where the sanitary sewer service is being extended from an existing service stub, the existing sewer service pipe shall be extended. In instances where a new sanitary sewer service is required, the connection shall be made with a circular saw cut of the existing sewer main by proper tools, allowing for removal of the cut out coupon and proper installation of a solid wye saddle with stainless steel band clamps, installed to the manufacturer's specifications shall be completed. No rubber saddles shall be allowed.

This item shall include the installation of a vertical service cleanout riser near the property line. The sanitary sewer service and service riser shall be constructed in accordance with the plans. The invert of the sanitary sewer service at the right-of-way shall be a minimum of 4' and maximum of 10', per the City details. The maximum depth achievable shall be used for installation. Pipe shall be laid at a minimum grade of 0.125" per linear foot. Six inch – 45- degree (MAX) SDR-26 short radius bend will connect to a SDR-26 WYE TEE. No vertical service connections permitted. Pipe will be laid under 12" minimum cover CA-6 granular backfill. Four inch CA6 granular backfill required under service pipe.

Sanitary sewer service pipe shall be PVC SDR 26 meeting the requirements of ASTM D-2241. Joints shall meet the requirements of ASTM D-3139.

The Contractor shall be responsible for maintaining the current level of service to all users connected to the existing sanitary sewer. Bypass pumping shall be provided as necessary.

Clay or cast iron pipe to PVC pipe transitions shall be made by use of shear resistant flexible Clay or CIP-to-PVC adapters (Fernco Model 5000). The transition shall be made on existing pipe that is structurally sound. Shop drawings shall be submitted to the Engineer for approval prior to manufacture and delivery to the site.

The Contractor shall field-verify the location of all existing sanitary sewer services, as necessary. Should the service connection alignment, diameter or point of connection vary from that shown in the plans, no claims for additional compensation will be entertained.

Method of Measurement. This work will be measured for payment in units of each.

Basis of Payment. This work will be paid for at the contract unit price per EACH for SANITARY SEWER SERVICE, 6" PVC, COMPLETE.

SANITARY FORCE MAIN, 4"

Description. This work shall consist of replacing the existing sanitary sewer force main of the size and type specified at the locations indicated in the plans or as directed by the Engineer. The replacement main material shall be PVC C900 (bell and spigot).

Materials. The materials shall be according to the applicable portions of Section 550 and 563 of the Standard Specifications and Sections 30 and 31 of the Standard Specifications for Water and Sewer Main Construction in Illinois, latest edition.

The Contractor shall maintain flow through the existing sanitary sewers within the project limits during the construction of the proposed sanitary sewer. Flow must be maintained at all times, unless otherwise approved by the City. Based on the flow within the sewers, this work may need to be performed during overnight hours or on weekend days. No additional compensation shall be allowed for work during these hours.

The Contractor shall submit his/her plan for the construction of the proposed sewer, the connections to the existing sewers, and how the existing flow will be maintained. Prior to starting any work on the sanitary sewer, the Contractor shall obtain approval of the plan from the City of

Woodstock and the Engineer. Forty-eight hours advance notice is required prior to beginning any sanitary sewer work. During this time, the Contractor is to ensure the affected property owners are notified of any potential interruption in services. This work is included in the unit price of Sanitary Force Main, 4".

The Contractor shall be responsible for maintaining a safe work environment during the construction of the sanitary sewer and maintaining the existing sewer flow. Any sewage spills shall be reported to the appropriate agencies and all clean-up shall meet the requirements of the City and IEPA. All clean-up work, including disposal costs, shall be included in the unit price of Sanitary Force Main, 4".

Temporary sheeting or bracing for sewer trenches that may be required shall be the responsibility of the Contractor. The cost of this work shall be included in the cost for Sanitary Force Main, 4".

Force main shall be installed at a depth to avoid conflicts with other utilities generally as shown on the plans. Installation shall be consistent in slope as to avoid any unnecessary sags or summits in the replacement lines.

Testing of the new force main shall be performed according to Section 31 of the Standard Specifications for Water and Sewer Main Construction in Illinois, latest edition.

All materials required for connection of the new force main to the existing force main shall be included in the cost of Sanitary Force Main, 4".

Method of Measurement. This work will be measured in place from the inside wall of the downstream manhole to the inside wall of the upstream manhole, or from the upstream point of connection to the existing sanitary sewer to the downstream connection.

Basis of Payment. This work will be paid for at the contract unit price per FOOT for SANITARY FORCE MAIN, 4". The unit price shall include all labor, equipment and materials required to remove the existing sanitary sewer force main and to furnish and install the replacement sanitary sewer force main.

The trench backfill will be paid for separately.

SANITARY SEWER PVC DR

Description. This work shall consist of constructing sanitary sewer by installing sections of pipe at the locations shown on the plans with all necessary fittings. All work shall be done in accordance with Division II Sections 20-22 and Division III Sections 31-33 of the Standard Specifications for Water and Sewer Construction in Illinois.

Bedding for sanitary sewer pipe shall be IDOT CA-7 virgin crushed limestone and shall be placed from four inches minimum below the pipe to 12 inches over the top of pipe, as shown in the PVC Pipe Trench Detail. The cost for the bedding shall be included in this work and will not be paid for separately.

Sanitary sewer pipe shall be the diameter shown on the plans and the material shall be PVC sewer pressure pipe conforming to ASTM D-2241 with rubber gasket joints conforming to ASTM D-2855 or flexible elastomeric seals per ASTM D-3139, for diameters less than 36". The DR for the PVC sewer pipe shall be 25, 21 or 18 as called out on plans. Connections to the existing sewer main shall be made using a max adaptor stainless steel shielded sewer coupling (size varies based on sewers being connected). All necessary couplings shall not be measured separately but included in the cost of Sanitary Sewer, of the size and type specified.

All trenches within 2' of proposed pavement, curb & gutter or sidewalk shall be backfilled with trench backfill.

Basis of Payment. This work shall be measured and paid for at the contract unit price per FOOT for SANITARY SEWER, PVC DR of the type and size specified, which price shall be considered payment in full for completing this work as specified. Trench backfill will be paid for separately.

SANITARY SEWER PVC SDR 26

Description. This work shall consist of constructing sanitary sewer by installing sections of pipe at the locations shown on the plans with all necessary fittings. All work shall be done in accordance with Division II Sections 20-22 and Division III Sections 31-33 of the Standard Specifications for Water and Sewer Construction in Illinois.

Bedding for sanitary sewer pipe shall be IDOT CA-7 virgin crushed limestone and shall be placed from four inches minimum below the pipe to 12 inches over the top of pipe. The cost for the bedding shall be included in this work and will not be paid for separately.

Sanitary sewer pipe shall be the diameter shown on the plans and the material shall be PVC sewer pressure pipe conforming to ASTM D-2241 with rubber gasket joints conforming to ASTM D-2855 or flexible elastomeric seals per ASTM D-3139, for diameters less than 36". The SDR for the PVC sewer pipe shall be 26. Connections to the existing sewer main shall be made using a max adaptor stainless steel shielded sewer coupling (size varies based on sewers being connected) All necessary couplings shall not be measured separately but included in the cost of sanitary sewer, of the size and type specified.

All trenches within 2' of proposed pavement, curb & gutter or sidewalk shall be backfilled with trench backfill.

Basis of Payment. This work shall be measured and paid for at the contract unit price per FOOT for SANITARY SEWER, PVC SDR 26 of the size specified, which price shall be considered payment in full for completing this work as specified. Trench backfill will be paid for separately.

SANITARY SEWER, DUCTILE IRON

Description. This work shall conform to Section 550 of the Standard Specifications and to the Standard Specifications for Water and Sewer Main Construction in Illinois (latest edition). The excavation, bedding, pipe laying, backfilling, and clean up shall be completed in accordance with the applicable portions of Divisions II and III of the Standard Specifications for Water and Sewer Main Construction in Illinois.

All sanitary sewer pipe materials shall conform to the latest applicable ANSI, ASTM, AWWA, AASHTO, or other nationally accepted standards. Ductile-Iron pipe shall meet the minimum requirements for Thickness Class 50.

The name of the manufacturer, class and date of issue shall be clearly identified on all sections of pipe. The Contractor shall also submit bills of loading, or other quality assurance documentation when requested by the Engineer.

All sanitary sewer pipes will be bedded in select granular material conforming to the gradation of CA 7.

All trenches for sanitary sewers falling under or within 2 feet of proposed or existing paved surfaces, or structures shall be backfilled with trench backfill.

Method of Measurement. This work shall be measured per foot of installed sanitary sewer.

Basis of Payment. This work will be paid for at the contract unit price per FOOT for SANITARY SEWER, DUCTILE IRON, of the size specified.

The trench backfill will be paid for separately.

MANHOLES, SANITARY, TYPE 1 FRAME, CLOSED LID MANHOLES, DROP TYPE, TYPE 1 FRAME, CLOSED LID

Description. This work consists of the installation of sanitary manholes and drop sanitary manholes of the size and type shown on the plans. This work shall be performed in accordance with the Standard Specifications for Water and Sewer Main Construction in Illinois (latest edition) and the Engineering Plans.

All new sanitary sewer structures shall be constructed using precast reinforced concrete sections with factory applied bituminous coating. External structure joints shall receive a polyethylene wrap. Final adjustments will be made using recycled rubber adjusting rings and external chimney seals. A maximum of eight 8" of recycled rubber adjusting rings will be permitted.

Frame and lids of the type specified in the plans will be included in the various sanitary sewer structures pay items in the contract.

Manhole frames shall be Neenah R-1713 (or R-1926C in flood plains or overland flood routes, as directed by Engineer). Lids shall be a "Neenah" type 1, or approved equal, with the word "SANITARY" stamped into the lid.

During the installation of the structures, it may be necessary to connect existing sanitary sewer pipes into the new structures. Connections of existing sanitary sewer pipes to the proposed structures shall be included in the contract unit price for the structure being installed.

Method of Measurement. This work shall be measured per each sanitary manhole.

Basis of Payment. This work will be paid for at the contract unit price per EACH for MANHOLES, SANITARY, of the specified size, and type of frame and lid, and per each for MANHOLES, DROP TYPE, of the specified size, and type of frame and lid. Price shall include all the work as specified above including heavy duty frame and lid, and internal and external chimney seals as shown in the details. The price shall also include all labor, tools, equipment and material including excavation, backfilling, disposal of waste excavated material and all other material necessary to complete the work as specified.

CONNECTION TO EXISTING MANHOLE

Description. This item shall include core-drilling existing structures and the installation of watertight flexible rubber connectors. This item shall be used where proposed sanitary sewer is to be installed and connected to an existing sanitary sewer structure.

All pipe connections to existing structures shall be made by core-drilling the wall of the existing structure and inserting an expandable, flexible rubber connector into the wall of the existing structure. The connector shall conform to ASTM C-443 & C-923 and include a stainless-steel band. The existing structure shall be core drilled with a mechanical powered rotary core drill. The hole shall be watertight with the connector. The use of mortar, brick, or rock shall not be permitted to fill in voids.

If it is not possible to core drill a hole into the existing structure, then the connection shall be made by pouring a concrete collar around the pipe connection to the structure in accordance with City requirements.

Method of Measurement. This work shall be measured per each for connection to existing manhole.

Basis of Payment. The work will be paid for at the Contract unit price per EACH for CONNECTION TO EXISTING MANHOLE.

SANITARY SEWER SERVICE CONNECTION AT MANHOLE

Description. The work consists of installing a new sanitary sewer service to the proposed sanitary sewer manholes up to the right of way line or easement lines, as shown on the plans or as directed by the Engineer. These sanitary service connections are made into a sanitary sewer manhole, as indicated on the plans. Replacement of service will not be allowed without prior approval from the Engineer.

Contractor to verify service inverts and manhole inverts.

Work will require core drill of a circular opening in the manhole wall of a diameter to fit the required boot size, as shown in the Sanitary Sewer Connection to Existing Manhole detail in the plans.

Method of Measurement. This work shall be measured per each for connection to existing manhole.

Basis of Payment. The work will be paid for at the contract unit price per EACH for SANITARY SEWER SERVICE CONNECTION AT MANHOLE. Price shall include all the work as specified above including core drill, flexible rubber boot, and stainless steel internal expanding bands as shown in the details. The price shall also include all labor, tools, equipment and material including excavation, backfilling, cleaning of manhole, disposal of waste excavated material and all other material necessary to complete the work as specified.

SANITARY SEWER CONNECTION

Description. This work shall consist of connecting the new sanitary sewer to the existing sanitary sewer as shown on the Plans. This work shall be done in accordance with the Standard Specifications for Water and Sewer Construction in Illinois (latest edition).

The connection shall be made with the same size and type of materials as the existing pipes. Wherever practical, removal of the "old sewer" to a "joint" will be done. If a tight connection cannot be obtained with normal connection procedures, non-shear no hub stainless-steel shielded couplings will be required.

Method of Measurement. The connections will be paid for on a per-connection basis, regardless of the length or nature of the connection.

Basis of Payment. This work will be paid for at the contract unit price per EACH for SANITARY SEWER CONNECTION, which price shall include all labor, materials, and equipment necessary to complete this item in accordance with the plans and specifications.

ADJUSTING SANITARY SEWER SERVICE LINE

Description. This work consists of adjusting sanitary sewer service lines encountered during the construction of the project as shown on the plans or as directed by the Engineer. The Contractor shall exercise caution when adjusting the sanitary sewer to avoid damage to adjoining utilities. Any damage to utilities caused by the Contractor due to the completion of this item shall be the responsibility of the Contractor. The work shall be done to minimize the downtime of service to customers. This work shall be performed in accordance with Section 563 of the Standard Specifications.

Method of Measurement. The work will be measured per each sanitary sewer service line adjusted.

Basis of Payment. The work will be paid for at the contract unit price for EACH for ADJUSTING SANITARY SEWER SERVICE LINE, regardless of the depth, length, size, or pipe material of the sanitary sewer service, which price shall be payment in full for all labor, equipment, and material necessary to complete the work as specified herein. The price shall include connections to the existing service lines; couplings; excavation; bracing; bedding and covering of pipe; trench dewatering, including erosion and sedimentation control methods and devices to provide protection to environment from all pumping operations; finish grading; removal and disposal of waste excavated materials; protection, replacement, or repairs of utilities; and backfilling with granular backfill materials.

ABANDON AND FILL EXISTING SANITARY SEWER (CLSM)

Description. This work shall consist of the abandonment of existing sanitary sewers and filling with CLSM (flowable fill). The work shall be performed in accordance with Section 551, 605 and 1019 of the Standard Specifications, the Standard Specifications for Water and Sewer Main Construction in Illinois (latest edition), except as revised herein.

Existing sanitary sewers shall be abandoned only after all new services have been transferred over to the new main and the new main is in operation. Sanitary sewers shall be mechanically capped on each end of the abandoned section. The cap shall not be paid for separately and shall be considered included in the cost of the work.

Method of Measurement. This work shall be measured per linear foot.

Basis of Payment. This work will be paid for at the contract unit price per FOOT for ABANDON AND FILL EXISTING SANITARY SEWER (CLSM) of the size indicated.

SANITARY SEWER REMOVAL

Description. This work shall consist of the removal and satisfactory disposal of existing sanitary sewers at locations shown on the plans or as directed by the Engineer. This work shall be done in accordance with Section 551 of the Standard Specifications and as specified herein:

The Contractor shall be responsible for the removal and disposal of the old sanitary sewer.

Brick and mortaring of abandoned inverts shall be included in the cost of this work.

Basis of Payment. This work will be paid for at the contract unit price per FOOT for SANITARY SEWER REMOVAL for all diameter of sewers, which price shall be payment in full for all labor, materials, and equipment necessary to complete this item in accordance with the plans and specifications.

All trenches located within 2' of proposed pavement, curb & gutter or sidewalk shall be backfilled with trench backfill. Trench backfill shall not be measured and paid for separately but included in the cost of sanitary sewer removal.

SANITARY MANHOLES TO BE ADJUSTED

Description. This work shall consist of adjusting the height of sanitary sewer manhole frames at locations as shown on the plans or as directed by the Engineer. This work shall be completed in accordance with applicable portions of Section 602 of the Standard Specifications and as specified herein.

Construction Requirements. The frame and lid shall be set in a full bituminous mastic bed or approved rubber gasket seal. The frame and lid shall be set accurately to the finished elevation so that no subsequent adjustment will be necessary. A chimney sealing system shall also be furnished. As part of the height adjustment all existing chimney seals, mastic compound, gaskets etc. shall be removed and properly disposed of.

Adjusting rings shall be in accordance with Section 1042, Article 1043.02 or Article 1043.03 of the Standard Specifications. The minimum thickness for concrete adjusting rings shall be 2".

Method of Measurement. This work will be measured for payment per each adjusted sanitary manhole frame and cover.

Basis of Payment. This work will be paid for at the contract unit price per EACH for SANITARY MANHOLES TO BE ADJUSTED.

SANITARY MANHOLES TO BE RECONSTRUCTED

Description. This work shall consist of all labor materials and equipment to reconstruct sanitary manholes to the final surface elevation of the improvements. The work shall be performed in accordance with Section 602 of the Standard Specifications, Section 32 of the Standard Specifications for Water and Sewer Main Construction in Illinois (latest edition).

Revise Article 602.07 to read: "Each disrupted manhole cone and barrel section joint shall require a double layer of butyl rope and also be externally sealed with a polyethylene sealing band. The band shall have an outer layer of polyethylene meeting the requirements of ASTM C-877, type II or type III. Prior to assembly, said joints shall be free of any aggregates or moisture. A maximum of 8" of recycled rubber adjusting rings (two total rings) is allowed in any adjustment. The frame and chimney of the cone section shall be required to be sealed with an external chimney seal.

Method of Measurement. This work shall be measured per each sanitary manhole to be reconstructed.

Basis of Payment. This work shall be paid for at the contract unit price per EACH for SANITARY MANHOLES TO BE RECONSTRUCTED, which includes all necessary labor, tools, equipment, and materials necessary to bring the existing structure frame and lid up to proposed grade.

SANITARY MANHOLES TO BE REMOVED

Description. This item shall consist of the removal of existing sanitary manholes as shown on the plans. Removal shall include the excavation and physical removal and disposal of the sanitary structures including the existing frame and lid. This work shall be done in accordance with Section 605 of the Standard Specifications, the Standard Specifications for Water and Sewer Construction in Illinois and as specified herein.

For sanitary structures located outside the limits of the roadway, the removal shall include the excavation and physical removal of the sanitary structures and backfilling the void left by the removal with earthen backfill.

For sanitary structures located within the limits of the roadway, the removal shall include the excavation and physical removal of the sanitary structures and backfilling the void left by the removal with trench backfill. Trench backfill needed to complete the removal shall be considered included in the cost of this work

Method of Measurement. This work shall be measured per each sanitary manhole removed.

Basis of Payment. This work will be paid for at the contract unit price per EACH for SANITARY MANHOLES TO BE REMOVED.

STUMP REMOVAL

Special attention is called to this item since the Contractor will, in this case, be required to remove stumps only and associated surface roots. The trees have previously been removed by others. A tree stump that cuts off at a height of 4.4 feet or below will be considered as a stump for the purposes of measurement and removal. All excess chips and debris from this operation shall be removed from state right-of-way. This work shall be done in accordance with Section 201 of the Standard Specifications for tree removal, except that stumps are to be removed to a minimum of 12 inches below the natural surface of the ground and surface roots shall be ground out.

Method of Measurement. Stumps to be removed as a payment item will be measured per each stump. Surface roots will not be measured for payment but shall be included in the stump removal.

Basis of Payment. This work will be paid for at the contract unit price per EACH for STUMP REMOVAL. All references to tree removal in the Standard Specifications shall include the item stump removal. Payment for stump removal shall include the cost of all material, equipment, labor, removal, disposal, cleanup, and incidentals required to complete the work as specified herein and to the satisfaction of the Engineer.

SEEDING, CLASS 4A (MODIFIED)

This work shall consist of seeding of class 4A (modified) in areas as shown in the plans or a directed by the Engineer. All work, materials, and equipment shall conform to Sections 250 and 1081 of the Standard Specifications except as modified herein.

The class 4A (modified) seed mixture seed mixture shall be supplied in separate bags of the three mixture components: temporary cover, permanent grasses, and forbs. All native species will be local genotype and verified that original seed collection source will be from a radius of 150 miles from the project. Fertilizer is not required.

Article 250.07 Seeding Mixtures – Delete sentence 4. Add the following to Table 1 – Seeding Mixtures:

| CLASS – TYPE | SEEDS | PURE LIVE SEED LB/ACRE |
|--|---|------------------------|
| 4A (Modified) Low Profile Native Grass | | 17.0 |
| | Andropogon scoparius (Little Bluestem) | 5.0 |
| | Bouteloua curtipendula (Side-Oats Grama) | 10.0 |
| | Elymus canadensis (Canada Wild Rye) | 2.0 |
| Temporary Cover | | 50 (lb/acre) |
| | Annual Ryegrass | 25.0 |
| | Oats, Spring | 25.0 |

Notes:

1. Each bag shall be labeled. The label shall bear the dealer's guarantee of mixture and year grown, purity and germination, and date of test. Purity and germination tests no older than 12 months of the date of sowing must be submitted to verify all bulk seed required to achieve LB PLS specified.
2. No seed shall be sown until the purity testing has been completed for seeds to be used and shows the seed meets the noxious weed requirements.
3. Seed, which has become wet, moldy, or otherwise damaged will not be acceptable. Prior to application, the Engineer must approve seed mix in the bags.
4. The seedbed shall be prepared and approved by the Engineer prior to seeding. The Contractor shall delineate the perimeter of the seedbed with wooden lathe. The wooden lathe shall remain in place.
5. Temporary cover seed shall be kept separate from the native grass seed mixture. It shall be mixed on site under the direction of the Engineer.
6. To eliminate potential introduction of invasive or exotic species, all equipment used on the planting site shall be free of mud and/or plant material. This includes tires, mower decks, undercarriage, etc.
7. The cover crop shall be thoroughly mixed with the class 4A (modified) seed mix and seeded using a mechanical seeder that applies the seed uniformly at a depth of 1/4 inch. The seedbed shall be immediately covered as specified.

If specified seed material is unavailable, the Engineer shall approve the substitutes in writing. Adjustments will be made at no cost to the contract. Approval of substitutes shall in no way waive any requirements of the contract.

Article 250.09 – Add Seeding, Class 4A (Modified)

Article 250.10 – Add Seeding, Class 4A (Modified)

PLANTING WOODY PLANTS

Description. This work shall consist of planting woody plants as specified in Section 253 of the Standard Specifications with the following revisions:

Delete Article 253.03 Planting Time and substitute the following:

Spring Planting. This work shall be performed between March 15th and May 31st except that evergreen planting shall be performed between March 15th and April 30th in the northern zone.

Add the following to Article 253.03 (a) (2) and (b):

All plants shall be obtained from Illinois Nurserymen's Association or appropriate state chapter nurseries. All trees and shrubs shall be dug prior to leafing out (bud break) in the spring or when plants have gone dormant in the fall, except for the following species which are only to be dug prior to leafing out in the spring:

- Red Maple (*Acer rubra*)
- Alder (*alnus* spp.)
- Buckeye (*Aesculus* spp.)
- Birch (*Betulus* spp.)
- American Hornbeam (*Carpinus carolina*)
- Hickory (*Carya* spp.)
- Eastern Redbud (*Cercis* spp.)
- American Yellowwood (*Cladrastis kentuckea* spp.)
- Corylus (*Filbert* spp.)
- Hawthorn (*Crataegus* spp.)
- Walnut (*Juglans* spp.)
- Sweetgum (*Liquidambar* spp.)
- Tuliptree (*Liriodendron* spp.)
- Dawn Redwood (*Metasequoia* spp.)
- Black Tupelo (*Nyssa sylvatica*)
- American Hophornbeam (*Ostrya virginiana*)
- Planetree (*Platanus* spp.)
- Poplar (*Populus* spp.)
- Cherry (*Prunus* spp.)
- Oak (*Quercus* spp.)
- Willow (*Salix* spp.)
- Sassafras (*Sassafras albidum*)
- Baldcypress (*Taxodium distichum*)
- Broadleaf Evergreens (all)
- Vines (all)

Fall Planting. This work shall be performed between October 1 and November 30 except that evergreen planting shall be performed between August 15 and October 15.

Planting dates are dependent on species of plant material and weather. Planting might begin or end prior or after above dates as approved by the Engineer. Do not plant when soil is muddy or during frost.

Add the following to Article 253.05 Transportation:

Cover plants during transport to prevent desiccation. Plant material transported without cover shall be automatically rejected. During loading and unloading, plants shall be handled such that stems are not stressed, scraped, or broken and that root balls are kept intact.

Delete the third sentence of Article 253.07 and substitute the following:

Trees must be installed first to establish proper layout and to avoid damage to other plantings such as shrubs and perennials.

The Contractor shall be responsible for all tree, shrub, and vine layout. The layout must be performed by qualified personnel. The planting locations must be laid out as shown in the landscape plan. This will require the use of an engineer's scale to determine dimensions.

Tree and shrub locations within each planting area shall be marked with different color stakes/flags and labeled to denote the different tree and shrub species.

Shrub and vine beds will first be marked out with flags to delineate the perimeter of the planting bed. Once the planting bed has been approved by the Roadside Development Unit, the perimeter shall be painted prior to the removal of the flags and turf. The removal of the existing turf will be by a method approved by the Engineer.

Prior to shrub, vine installation, all plants shall be placed above ground or planting locations clearly marked out.

All utilities shall have been marked prior to contacting the Roadside Development Unit. The Engineer will contact the Roadside Development Unit at (847) 705-4171 to approve the layout prior to installation. Allow a minimum of seven working days prior to installation for approval.

Delete the first paragraph to Article 253.08 Excavation of Plant Holes and substitute with the following:

Protect structures, utilities, sidewalks, bicycle paths, knee walls, fences, pavements, utility boxes, other facilities, lawns and existing plants from damage caused by planting operations. Excavation of the planting hole may be performed by either hand, machine excavator, or auger.

The excavated material shall not be stockpiled on turf, in ditches, or used to create enormous water saucer berms around newly installed trees or shrubs. Remove all excess excavated subsoil from the site and dispose as specified in Article 202.03.

Delete the second sentence of Article 253.08 Excavation of Plant Holes(a) and the third paragraph of Article 253.08(b) and substitute with the following:

Excavation of planting hole width. Planting holes for trees, shrubs, and vines shall be three times the diameter of the root mass and with 45-degree sides sloping down to the base of the root mass to encourage rapid root growth. Roots can become deformed by the edge of the hole if the hole is too small and will hinder root growth.

Planting holes dug with an auger shall have the sides cut down with a shovel to eliminate the glazed, smooth sides and create sloping sides.

Excavation of planting hole depth. The root flare shall be visible at the top of the root mass. If the trunk flare is not visible, carefully remove soil from around the trunk until the root flare is visible without damaging the roots. Remove excess soil until the top of the root mass exposes the root collar.

The root flare shall always be slightly above the surface of the surrounding soil. The depth of the hole shall be equal to the depth of the root mass minus 1 inch allowing the tree or shrub to sit 0.1 inch higher than the surrounding soil surface for trees that have a 1-inch caliper or

smaller. The depth of the hole shall be equal to the depth of the root mass minus 2 inches allowing the tree or shrub to sit 2 inches higher than the surrounding soil surface for trees that have a 2-inch caliper or larger.

For stability, the root mass shall sit on existing undisturbed soil. If the hole was inadvertently dug too deep, backfill and recompact the soil to the correct depth.

Excavation of planting hole on slopes. Excavate away the slope above the planting hole to create a flattened area uphill of the planting hole to prevent the uphill roots from being buried too deep. Place the excess soil on the downslope of the planting hole to extend the planting shelf to ensure roots on the downhill side of the tree remain buried. The planting hole shall be three times the diameter of the root mass and saucer shaped. The hole may be a bit elongated to fit the contour of the slope as opposed to the typical round hole on flat ground.

Add backfill to create a small berm on the downhill portion of the planting shelf to trap water and encourage movement into the soil to increase water filtration around the tree. Smooth out the slope above the plant where you have cut into the soil so the old slope and the new slope transition together smoothly.

Add the following to Article 253.08 Excavation of Plant Holes (b):

When planting shrubs in shrub beds or vines in vine beds as shown on the plans or as directed by the Engineer, the Contractor will contact the Roadside Development Unit to approve the layout prior to removing the existing turf. The removal of the existing turf will be by a method approved by the Engineer. Areas damaged outside the delineated planting beds shall be restored at the Contractor's expense.

Spade a planting bed edge at approximately a 45-degree angle and to a depth of approximately 3-inches around the perimeter of the shrub bed prior to placement of the mulch. Remove any debris created in the spade edging process and dispose of as specified in Article 202.03.

Delete Article 253.09 (b) Pruning and substitute with the following:

Deciduous Shrubs. Shrubs shall be pruned to remove dead, conflicting, or broken branches and shall preserve the natural form of the shrub.

Delete the third and fourth paragraphs of Article 253.10 Planting Procedures and Article 253.10 (a) and substitute the following:

Approved watering equipment shall be at the immediate work site area and in operational condition prior to starting the planting operation and during all planting operations or planting will not be allowed.

All plants shall be placed in a plumb position and avoid the appearance of leaning. Confirm the tree is straight from two directions prior to backfilling.

Before the plant is placed in the hole, any paper or cardboard trunk wrap shall be removed. Check that the trunk is not damaged. Any soil covering the tree's root flare shall be removed to expose the crown prior to planting.

Check the depth of the root ball in the planting hole. With the root flare exposed, one-inch caliper trees shall be set one inch higher than the surrounding soil and two-inch and larger caliper trees shall be set two inches higher than the surrounding soil. The root flare shall always be slightly above the surface of the surrounding soil. For stability, the root ball shall sit on existing undisturbed soil. If the hole was inadvertently dug too deep, backfill and recompact the soil to the correct depth.

After the plant is placed in the hole, all cords and burlap shall be removed from the trunk. Remove the wire basket from the top three quarters of the root ball. The remaining burlap shall be loosened and scored to provide the root system quick contact with the soil. All ropes or twine shall be removed from the root ball and tree trunk. All materials shall be disposed of properly.

The plant hole shall be backfilled with the same soil that was removed from the hole. Clay soil clumps shall be broken up as much as possible. Where rocks, gravel, heavy clay, or other debris are encountered, clean topsoil shall be used. Do not backfill excavation with subsoil.

The hole shall be 1/3 filled with soil and firmly packed to assure the plant remains in plumb, then saturated with water. After the water has soaked in, complete the remaining backfill in 8" lifts, tamping the topsoil to eliminate voids, and then the hole shall be saturated again. Maintain plumb during backfilling. Backfill to the edge of the root mass and do not place any soil on top of the root mass. Visible root flare shall be left exposed, uncovered by the addition of soil.

Add the following to Article 253.10 (b):

After removal of the container, inspect the root system for circling, matted or crowded roots at the container sides and bottom. Using a sharp knife or hand pruners, prune, cut, and loosen any parts of the root system requiring corrective action.

Delete the first sentence of Article 253.10(e) and substitute with the following:

Water Saucer. All plants placed individually and not specified to be bedded with other plants, shall have a water saucer constructed of soil by mounding up the soil 4-inches high x 8-inches wide outside the edge of the planting hole.

Delete Article 253.11 and substitute the following:

Individual trees, shrubs, shrub beds, and vines shall be mulched within 48 hours after being planted. No weed barrier fabric will be required for tree and shrub plantings.

The mulch shall consist of wood chips or shredded tree bark free not to exceed 2 inches in its largest dimension, free of foreign matter, sticks, stones, and clods. Mulch shall be aged in stockpiles for a minimum of four months where interior temperatures reach a minimum of 140-degrees. The mulch shall be free from inorganic materials, contaminants, fuels, invasive weed seeds, disease, harmful insects such as emerald ash borer or any other type of material detrimental to plant growth. A sample must be supplied to the Roadside Development Unit for approval prior to performing any work. Allow a minimum of seven working days prior to installation for approval.

Mulch shall be applied at a depth of 4-inches around all plants within the entire mulched bed area or around each individual tree forming a minimum 5-foot diameter mulch ring around each tree. An excess of 4-inches of mulch is unacceptable, and excess shall be removed. Mulch shall not be tapered so that no mulch shall be placed within 6-inches of the shrub base or trunk to allow the root flare to be exposed and shall be free of mulch contact.

Care shall be taken not to bury leaves, stems, or vines under mulch material. All finished mulch areas shall be left smooth and level to maintain uniform surface and appearance. After the mulch placement, any debris or piles of material shall be immediately removed from the right of way, including raking excess mulch out of turf areas in accordance with Article 202.03.

Pre-emergent herbicide shall be used in the around the plant beds and tree rings after the placement of mulch. See specification for Weed Control, Pre-emergent Herbicide.

Delete Article 253.12 Wrapping and substitute the following:

Within 48 hours after planting, screen mesh shall be wrapped around the trunk of all deciduous trees with a caliper of 1-inch or greater. Multi-stem or clump form trees, with individual stems having a caliper of 1-inch or greater, shall have each stem wrapped separately. The screen mesh shall be secured to itself with staples or single wire strands tied to the mesh. Trees shall be wrapped at time of planting, before the installation of mulch. The lower edge of the screen wire shall be in continuous contact with the ground and shall extend up to a minimum of 36-inches or to the lowest major branch, whichever is less. Replacement plantings shall not be wrapped.

Delete Article 253.13 Bracing and substitute with the following:

Unless otherwise specified by the Engineer, within 48 hours after planting all deciduous and evergreen trees, with the exception of multi-stem or clump form specimens, over 8-feet in height shall require three 6-foot long steel posts so placed that they are equidistant from each other and adjacent to the outside of the ball. The posts shall be driven vertically to a depth of 18-inches below the bottom of the hole. The anchor plate shall be aligned perpendicular to a line between the tree and the post. The tree shall be firmly attached to each post with a double guy of 14-gauge steel wire. The portion of the wire in contact with the tree shall be encased in a hose of a type and length approved by the Engineer.

During the life of the contract, within 72 hours the Contractor shall straighten any tree that deviates from a plumb position. The Contractor shall adjust backfill compaction and install or adjust bracing on the tree as necessary to maintain a plumb position. Replacement trees shall not be braced.

Delete the second sentence of the first paragraph of Article 253.14 Period of Establishment and substitute the following:

This period shall begin in April and end in November of the same year.

Delete the first paragraph of Article 253.15 Plant Care and substitute the following:

During the period of establishment, the Contractor shall properly care for all plants including weeding, watering, adjusting of braces, repair of water saucers, pruning, cultivating, tightening, and repairing supports, repair of wrapping, and furnishing and applying sprays as necessary to keep the plants free of insects and disease, or other work which is necessary to maintain the health and satisfactory appearance of the plantings. The Contractor shall provide plant care a minimum of every two weeks, or within 36 hours following notification by the Engineer. All requirements for plant care shall be considered as included in the cost of the contract.

Delete the first paragraph of Article 253.15 Plant Care (a) and substitute with the following:

During the period of establishment, watering (initial) shall be performed at least every 30 days following installation during the months of May through November and is included in the cost of the contract unit price per each for trees, shrubs, or vines, of the species, root type, and plant size specified. The Contractor shall apply per week a minimum of 15 gallons of water per tree, 10 gallons per large shrub, 5 gallons per small shrub, and 2 gallons per vine.

Additional watering will be done once a week (three times a month) following installation during the months of May through November. Any required additional watering in between the regularly scheduled (initial) watering(s) will be paid for as Supplemental Watering.

Special consideration in determining water needs must be given during extreme weather conditions or if plants exhibit any signs of stress in between the regularly scheduled every thirty-day watering during the period of establishment. Water immediately if plants show signs of wilting or if top 1 inch to 2 inches of soil is dry. Water to ensure that moisture penetrates throughout the root zone, including the surrounding soil, and only as frequently as necessary to maintain healthy growth. **Do not overwater.**

The Engineer may direct the Contractor to adjust the watering rate and frequency depending upon weather conditions. Should excess moisture prevail, the Engineer may delete any or all the additional watering cycles.

Add the following to Article 253.15 Plant Care (c):

The Contractor shall correct any vine growing across the ground plane that should be growing up desired vertical element (noise wall, retaining wall, fence, knee wall, etc.). Work may include but is not limited to carefully weaving vines through fence and/or taping vines to vertical elements.

Add the following to Article 253.15 Plant Care (d):

The Contractor shall inspect all trees, shrubs, and vines for pests and diseases at least every two weeks during the months of initial planting through final acceptance. Contractor must identify and monitor pest and diseases and determine action required to maintain the good appearance, health, and top performance of all plant material. Contractor shall notify the Engineer with their inspection findings and recommendations within 24 hours of findings. The recommendations for action by the Contractor must be reviewed and by the Engineer for approval/rejection. All approved corrective activities will be considered as included in the cost of the contract and shall be performed within 36 hours following notification by the Engineer.

Add the following to Article 253.16 Method of Measurement:

Pre-emergent herbicide will be measured for payment as specified in weed control, pre-emergent granular herbicide.

Additional watering will be measured for payment as specified in supplemental watering.

Delete Article 253.17 Basis of Payment and substitute the following:

This work will be paid for at the contract unit price per EACH for TREES, SHRUBS, or VINES, of the species, root type, and plant size specified, and per UNIT for SEEDLINGS. The unit price shall include the cost of all materials, equipment, labor, plant care, removal, disposal, and incidentals required to complete the work as specified herein and to the satisfaction of the Engineer. Payment will be made according to the following schedule:

- (a) Initial Payment. Upon completion of planting, mulching, wrapping, and bracing, 75 % of the pay item(s) will be paid.
- (b) Final Payment. Upon inspection and acceptance of the plant material, or upon execution of a third-party bond, the remaining 25% of the pay item(s) will be paid.”
- (c) The placement of pre-emergent herbicide shall be paid for at the contract unit price for Weed Control, Pre-Emergent Granular Herbicide.
- (d) Additional watering will be paid for as specified in Supplemental Watering.

PLANTING PERENNIAL PLANTS

Description. This work shall consist of planting perennial plants as specified in Section 254 of the Standard Specifications with the following revisions:

Delete Article 254.04(a) Planting Time and substitute the following:

Bulbs shall be planted between October 15 and November 30. Bulbs shall not be installed prior to trees, shrubs, perennials, and ornamental grasses are planted.

Delete Article 254.06 Layout of Planting and substitute the following:

When plants are specified to be planted in prepared soil planting beds, the planting bed shall be approved by the Engineer prior to planting. The Contractor shall be responsible for all plant layout. The layout must be performed by qualified personnel. The planting locations must be laid out as shown in the landscape plan. This will require the use of an engineer's scale to determine some dimensions. Bed limits shall be painted or flagged. Individual plants layout shall be marked prior to installation. The Engineer will contact the Roadside Development Unit at (847) 705-4171 to approve the layout prior to installation. Allow a minimum of three days prior to installation for approval.

Add the following to Article 254.07 Planting Procedures:

When planting perennials in bed areas shown on the plans or as directed by the Engineer, the following work shall be performed prior to planting:

- Spade a planting bed edge at approximately a 45 degree angle and to a depth of approximately 3 inches around the perimeter of the perennial bed. Remove any debris created in the spade edging process and dispose of as specified in Article 202.03.
- Do not plant when soil is muddy.
- Trees and shrubs must be installed first to establish proper layout and to avoid damage to other plantings.
- Perennial plants shall be planted by a hand method approved by the Engineer. Open holes sized to accommodate roots, place plants so it is level with the surrounding soil and backfill with soil, working carefully to avoid damage to roots and to leave no voids. Build up a small water basin of soil around each plant.
- Thoroughly water plant beds within two hours of installation. Do not wash soil onto crowns of plants.

Delete the first sentence of Article 254.08 Mulching and substitute the following:

Within 24 hours, the entire perennial plant bed shall be mulched with 2 inches of fine grade shredded hardwood bark mulch. Hardwood bark mulch shall be clean, finely shredded mixed-hardwood bark not to exceed 2 inches in its largest dimension, free of foreign matter, sticks, stones, and clods. All hardwood mulch shall be processed through a hammer mill. Hardwood bark not processed through a hammer mill shall not be accepted. A mulch sample shall be submitted to the Engineer for approval seven days prior to placing.

Care shall be taken to place the mulch to form a saucer around each perennial so as not to smother the plants or bury leaves, stems or vines under mulch material.

Delete Article 254.08 (b) Period of Establishment and substitute the following:

Perennial plants must undergo a 30-day period of establishment. Additional watering shall be performed no less than once a week for four weeks following installation. Any signs of stress exhibited by plant material must be given special consideration in determining water needs. Water immediately if plants begin to wilt, or if top 1 inch to 2 inches of soil is dry. Water shall be applied at the rate of a minimum of 2 gallons per square foot. Water to ensure that moisture penetrates throughout the root zone, including the surrounding soil, and only as frequently as necessary to maintain healthy growth. **Do not over water.**

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.

Water must be applied in such a manner so as not to damage plant material. Water must trickle slowly into soil and completely soak the root zone. An open end hose is unacceptable. Water early in the day and apply water as close to the soil as possible without washing out soil or mulch. Water at the base of the plant to keep as much water as possible off plant leaves to minimize fungus problems. Watering of plants in beds shall be applied in such a manner that all plant holes are uniformly saturated without allowing water to flow beyond the

periphery of the bed. Thoroughly saturate all areas of the perennial bed, not just individual plants. The plants to be watered and the method of application will be approved by the Engineer.

The Contractor will not be relieved in any way from the responsibility for unsatisfactory plants due to the amount of watering. Any loss of newly installed plant material determined by the Engineer to be due to lack of water, is the responsibility of the contractor to replace at no additional cost. Any damage to plant material due to incorrect watering must be corrected or replace at the Contractors expense, to the satisfaction of the Engineer.

Add the following Article 254.09 Period of Establishment:

During the period of establishment, weeds and grass growth shall be removed from within the mulched perennial beds. This weeding shall be performed a minimum of once per week or within 48 hours following notification by the Engineer during the 30-day period of establishment. The Contractor will not be relieved in any way from the responsibility for unsatisfactory plants due to the extent of weeding.

The weeding may be performed in any manner approved by the Engineer provided the weed and grass growth, including their roots and stems, are removed from the area specified. Mulch disturbed by the weeding operation shall be replaced to its original condition. All debris that results from this operation must be removed from the right-of-way and disposed of at the end of each day in accordance with Article 202.03.

Add the following to Article 254.10 Method of Measurement:

- a) Disposal of weeds, sod and debris (rock, stones, concrete, bottles, plastic bags, etc.) removed from the perennial planting bed as specified in Article 202.03.

Add the following to Article 254.11 Basis of Payment:

- a) Payment for shredded mulch shall be included in contract unit price of the perennial plant pay item.
- b) The unit price shall include the cost of all materials, equipment, labor, plant care, removal, disposal and incidentals required to complete the work as specified herein and to the satisfaction of the Engineer.

GENERAL REQUIREMENTS FOR WEED CONTROL SPRAYING

Experience. The Contractor shall have previous experience with the use of weed control chemicals. He/she shall have had at least three seasons experience in ecological restoration and the ability to identify and differentiate between targeted weeds and vegetation to remain. The Contractor shall observe and comply with all sections of the Illinois Custom Spray Law, including licensing. Contractor personnel applying herbicides shall have a valid pesticide applicator license issued by the Illinois Department of Agriculture.

The licensed pesticide applicator shall attend the preconstruction meeting and submit their current license to the Engineer. The licensed pesticide applicator shall be qualified at a minimum in Right-of-Way and Aquatics. The licensed applicator shall work on-site.

Equipment. The equipment used shall consist of a vehicle-mounted tank, pump, spray bar and handgun, plus any other accessories needed to complete the specified work. Spraying shall be done through multiple low-pressure flooding or broad jet nozzles mounted on spray bars operated not more than 36" above the ground. If different sizes or types of nozzles are used to make up the spray pattern, the pressure, sizes and capacities shall be adjusted to provide a uniform rate of application for each segment of the spray pattern. Hand spray guns may be used for spraying areas around traffic control devices, lighting standard and similar inaccessible areas. Maximum speed of the spray vehicle during application of chemical shall be 10 miles per hour.

Pumps used shall have a volume and pressure capacity range sufficient to deliver the mixture at a pressure to provide the required coverage and to keep the spray pattern full and steady without pulsation or excessive pressure as to cause fogging. Maximum pressure for application shall be 15 PSI. Quick acting shut-off valves and spring-loaded ball check valves shall be provided to stop the spray pattern with a minimum of nozzle drip. In areas where the spray vehicle must traverse the right-of-way, a four-wheel drive vehicle with flotation tires will be required to minimize damage to the ground surface.

Additional equipment used shall consist of swiping gloves, wicks, wands, hand spray guns and/or backpack sprayers, plus any other accessories needed to complete the specified work as directed by the Engineer. Wick applicators, swiping gloves, or other such devices may be required to ensure herbicides are applied only to target species. If hand spray guns used are attached to spray vehicle, maximum speed of the spray vehicle during application of chemical shall be 5 miles per hour. In areas where a vehicle is needed to traverse the right-of-way, a four-wheel drive vehicle with flotation tires will be required to minimize damage to the ground surface.

Prior to beginning work, the Contractor shall obtain approval from the Engineer of the spraying equipment proposed for completing this work. The proposed equipment shall be in an operational condition and available for inspection by the Engineer at least two weeks prior to the proposed starting time. If requested by the Engineer, the Contractor shall demonstrate the calibration of the equipment.

The equipment must provide consistently uniform coverage and keep the spray mixture sufficiently agitated or the work will be suspended until the equipment is repaired or replaced.

Spraying Areas. This work includes roadsides and other types of right-of-way of various widths and gradients. Spray areas often extend more than 30 feet from the edge of the roadway, requiring both spray bar and hand gun applications.

When the description of work requires weed control of a stated species, such as teasel, the chemical shall be applied only to locations where the stated species is present. When the description of work requires general weed control within a bed or area, such as broadleaf weed control in turf, then the chemical shall be applied to the entire bed or area.

Exclusion of Spraying Areas. Areas where weed control spraying is inappropriate or detrimental to the environment, desirable planting, or private property shall be excluded from the spray area. Spraying will not be permitted over any drainage swales or waterways, or other areas where the chemical label prohibits application. Spraying within 150 feet of a natural area or site where endangered or threatened species occur.

Responsibility for Prevention of Damage to Private Property. The Contractor shall, at all times, exercise extreme caution to prevent damage to residential plantings, flower or vegetable gardens, vegetable crops, farm crops, orchard or desirable plants adjacent to the roadside.

The Contractor or Department receives a complaint; the Contractor shall contact a complaint within ten days after receiving a claim for damages, either in person or by letter. The Contractor, or his authorized representative, shall make a personal contact with the complainant within 20 days. The Engineer shall also be notified by the Contractor of all claims for damage he received and shall keep the Engineer informed as to the progress in arriving at a settlement for such claims.

Communication with the Engineer. The Contractor is required to communicate with the Engineer to receive all required approvals in a timely way and to assure that the Engineer can accurately document the work performed.

All herbicide application shall be directly supervised by the Engineer for quality assurance and for payment purposes. If the Contractor performs work without the Engineer's supervision, work will not be paid for. It shall be the Contractor's responsibility to assure that all chemical containers are opened and added to the spray mixture in the presence of the Engineer.

The Contractor shall obtain approval from the Engineer to proceed with spraying at each location 24 hours prior to the proposed spray operations.

The Contractor's superintendent shall closely coordinate work with the Engineer at all times in accordance with Article 105.06. The superintendent shall attend weekly progress meetings with the Engineer at the Engineer's office or other mutually agreed upon location. The superintendent shall communicate with the Engineer in the field during weed control activities to facilitate accurate completion of work while it is occurring. At the request of the Engineer, the Contractor shall provide a cell phone number where the superintendent can be reached during working hours. The Contractor shall notify the Engineer at least 24 hours in advance of either discontinuing or resuming operations.

Pesticide Application Daily Spray Record. The Contractor will be required to properly track pesticide applications as required by the ILG87 Permit. Reported data from this form will be collected and compiled annually and reported to the IEPA as required.

Within 48 hours of the application of pesticides, including but not limited to herbicides, insecticides, algaecides, and fungicides, the Contractor shall complete and return to the Engineer, Operations form "OPER 2720". OPER 2720 may be found at the following link:

<http://www.idot.illinois.gov/Assets/uploads/files/IDOT-Forms/OPER/OPER%202720.docx>.

WEED CONTROL, PRE-EMERGENT GRANULAR HERBICIDE

Created: July 29, 2002

Modified: December 3, 2010

Description: This work shall consist of spreading a pre-emergent granular herbicide in place of weed barrier fabric in areas as shown on the plans or as directed by the Engineer. This item will be used in mulched plant beds and mulch rings.

Delete Article 253.11 and substitute the following:

Within 48 hours after planting, mulch shall be placed around all plants in the entire mulched bed or saucer area specified to a depth of 4 inches. No weed barrier fabric will be required for tree and shrub planting. Pre-emergent herbicide will be used instead of weed barrier fabric. the pre-emergent herbicide shall be applied prior to mulching. Mulch shall not be in contact with the base of woody stems or trunks.

Materials: The pre-emergent granular herbicide shall contain the chemicals Trifluralin 2% active ingredient and Isoxaben with 0.5% active ingredient. The herbicide label shall be submitted to the Engineer for approval at least 72 hours prior to application.

Method: The pre-emergent granular herbicide shall be used in accordance with the manufacturer's directions on the package. The granules are to be applied prior to mulching.

Apply the granular herbicide using a drop or rotary-type designed to apply granular herbicide or insecticides. Calibrate application equipment to use according to manufacturer's directions. Check frequently to be sure equipment is working properly and distributing granules uniformly. Do not use spreaders that apply material in narrow concentrated bands. Avoid skips or overlaps as poor weed control or crop injury may occur. More uniform application may be achieved by spreading half of the required amount of product over the area and then applying the remaining half in swaths at right angles to the first. Apply the granular herbicide at the rate of 100 lbs/acre or 2.3 lbs/1000 sq. ft.

Method of Measurement: Pre-emergent granular herbicide will be measured in place in pounds of pre-emergent granular herbicide applied. Areas treated after mulch placement shall not be measured for payment.

Basis of Payment: This work will be paid for at the contract unit price per POUND of WEED CONTROL, PRE-EMERGENT GRANULAR HERBICIDE which price shall include all materials, equipment, and labor necessary to complete the work as specified.

NATIVE PRAIRIE SOD, MESIC

Description: Work under this item shall be performed in accordance with Section 252 of the Standard Specifications except as herein modified. This work shall consist of preparing the ground surface and furnishing, transporting, placing, watering, and establishing native prairie sod and other work items required in the sodding operations as described herein and as directed by the Engineer.

General Requirement. The Contractor shall begin locating native prairie sod, mesic ("sod") suppliers immediately upon contract award. Due to the time sensitive nature of the sod, the Contractor shall make arrangements for custom grown nursery stock and shall coordinate sufficient lead times with the supplier so that optimum vegetative growth has occurred upon installation.

Quality Assurance Requirements.

1. sod shall be provided by a qualified nursery having a minimum of five years experience in the growing and installation of vegetated sod or mats composed of native prairie species. References shall be submitted to the Engineer.
2. Qualifications of workmen:
 - a. Provide at least one person/foreman who shall be present at all times during execution of this portion of the work and who shall be thoroughly familiar with the type of materials, design methods, details, etc. being installed and the best methods for their installation and who shall direct all work performed under this specification.
 - b. This designated person/foreman shall be present at all landscape pertinent pre-construction meetings, progress meetings, and on-site throughout the duration of the sodding portion of the project including establishment. This designated individual shall be the main point of contact between all parties involved as it relates to the native sodding.
 - c. This designated person/foreman shall also be the main point of contact for all submittals, samples, and project notifications as outlined herein.
 - d. This designated person/foreman shall be familiar with all drawings and specifications included in the contract documents to ensure continuity for the project and provide clear direction for all involved.
3. Experience Requirement: The person/foreman outlined above must meet the following requirements for approval as the main point of contact for the project:
 - a. Minimum of five years of successful and continuous experience on projects of this type.
 - b. Minimum of five successful project types of this size and scope including cost
 - c. Contractor to provide proof of the above requirements including photographic evidence of projects at installation and at different stages of maturity.
 - d. If applicable, demonstrate previously installed successful projects.
 - e. Experience in ecological restoration and the ability to identify and differentiate between the targeted weeds and vegetation to remain.

Materials.

1. The native prairie sod, mesic ("sod") shall consist of a custom native grass/forb mix seeded into engineered soil with 100% biodegradable coir mat of woven coir fibers evenly machine

twisted and spun at 20.5 to 25.5 oz/cu yd. The sod shall be fully rooted with vegetative coverage of no less than 75% by the time of installation. sod dimensions shall be 3.3' x 11' (four square yards) per roll.

2. Obtain sod from a single nursery source with resources to grow sod of specified consistent quality. The nursery shall have the capacity to grow, cut, and deliver the sod on schedule.
3. sod shall be planted with the following native grass and forb mix that shall be healthy, vigorous and a minimum average height of 6 to 12 inches. Minimum of 300 seeds/square foot with 60/40 grass to forb ratio based on seed count.

Low Profile Native Grass Variety

Bouteloua curtipendula (Side Oats Grama)
Carex bicknellii (Copper-Shouldered Oval Sedge)
Carex brevior (Plains Oval Sedge)
Carex vulpinoidea (Brown Fox Sedge)
Danthonia spicata (Poverty Oat Grass)
Elymus trachycaulus (Slender Wheatgrass)
Koeleria macrantha (June Grass)
Schizachyrium scoparium (Little Bluestem)
Sporobolus heterolepis (Prairie Dropseed)

Native Forb Variety

Allium cernuum (Nodding Wild Onion)
Amorpha canescens (Leadplant)
Aquilegia canadensis (Wild Columbine)
Asclepias incarnata (Swamp Milkweed)
Asclepias tuberosa (Butterfly Weed)
Asclepias verticillata (Whorled Milkweed)
Baptisia alba (White Wild Indigo)
Baptisia australis (Blue Wild Indigo)
Baptisia bracteata (Cream Wild Indigo)
Chamaecrista fasciculata (Partridge Pea)
Coreopsis lanceolata (Lance-leaf Coreopsis)
Coreopsis palmata (Prairie Coreopsis)
Dalea candida (White Prairie Clover)
Dalea purpurea (Purple Prairie Clover)
Drymocallis arguta (Prairie Cinquefoil)
Echinacea pallida (Pale Purple Coneflower)
Echinacea purpurea (Purple Coneflower)
Eryngium yuccifolium (Rattlesnake Master)
Euthamia graminifolia (Grass-leaved Goldenrod)
Helianthus occidentalis (Western Sunflower)
Liatris aspera (Rough Blazing Star)
Liatris pycnostachya (Prairie Blazing Star)
Lobelia cardinalis (Cardinal Flower)
Lupinus perennis (Wild Lupine)
Monarda fistulosa (Wild Bergamot)
Oligoneuron ohioensis (Ohio Goldenrod)

Penstemon cobaea (Showy Beardtongue)
Penstemon digitalis (Foxglove Beardtongue)
Penstemon pallidus (Pale Beardtongue)
Pycnanthemum virginianum (Mountain Mint)
Ratibida pinnata (Yellow Coneflower)
Rudbeckia fulgida speciosa (Showy Black-Eyed Susan)
Rudbeckia hirta (Black-Eyed Susan)
Ruellia humilis (Wild petunia)
Silene regia (Royal Catchfly)
Solidago nemoralis (Old Field Goldenrod)
Solidago speciosa (Showy Goldenrod)
Symphyotrichum laevis (Smooth Blue Aster)
Symphyotrichum oolentangiense (Sky Blue Aster)
Tradescantia occidentalis (Western Spiderwort)
Tradescantia ohimensis (Ohio Spiderwort)
Verbena stricta (Hoary Vervain)
Veronicastrum virginicum (Culver's Root)
Zizia aptera (Heart-leaved Golden Alexander)

Variation in the seed quantities or varieties may be allowed in the event of a crop failure or other unforeseen conditions. Quantities of proposed substitutions shall be determined by seed count. The Contractor shall provide for the approval of the Engineer a written description of the proposed changes to the grass and forb mixture(s), the reasons for the change, and the name of the seed suppliers who were contacted in an effort to obtain the specified species. Adjustments will be made at no cost to the contract. Approval of substitutes shall in no way waive any requirements of the contract.

4. sod shall be attached to the finished grade with 12", eight-gauge wire, U shaped sod staples which shall be incidental to sod installation.
5. sod soilless media shall be approved by the Engineer.

Submittals.

1. Photos and references of previous projects for nursery growing sod and Contractor placing sod.
2. Within 60 days of contract award, Contractor must submit proof that a supplier has been located and an ordered placed to custom grow the sod along with schedules for planting, germination, and delivery of mature plantings. sod shall be subject to periodic inspections and approval at place of growth throughout the growing process.
3. Request for Field Report On Inspection of Plant Material form
4. Schedules as specified herein
5. Sample of biodegradable core of the sod mat
6. One quart sample of soilless media
7. Certification letter from authorized nursery representative stating that the seed mixture used in the native sod conforms to the specification.

Construction Requirements

Ground Preparation.:

1. Fertilizers are not necessary and shall not be applied.
2. Soil contact for the sod is vital. Do not install sod on hard, compacted soil. If standing water is present, dewatering of the site shall be done prior to soil preparation. See specification for dewatering.
3. The area to be sodded shall be finished according to Section 212 before sodding operations are begun. Before the sod is place, the soil surface shall be worked until it is free from debris, litter, washes, gullies, clods, stones, sticks, and existing vegetation.
4. Finished ground elevations shall allow for the thickness of sod to match grade of existing turf or structures. Additional topsoil required to bring the area to sub grade elevation will not be paid for separately but considered incidental to the cost of sod. Additional topsoil shall be approved by the Engineer.
5. Immediately prior, but not in excess of 48 hours the surface shall be worked to a depth of no less than 6 inches with a disk, tiller, or other equipment approved by the Engineer, reducing all soil particles to a size not larger than 1 inch in the largest dimension. Prepared surface shall be finished to a fine smooth, uniform finish free of litter, debris, rocks, sticks, and existing vegetation not specified to remain. Prepared soil surfaces that have become crusted shall be reworked to an acceptable condition before sodding. sod shall not be placed until the soil bed has been approved by the Engineer.
6. sod shall be placed in rows. To avoid air gaps, as work progresses row by row, the Contractor shall rake smooth the soil in the row to be sodded to eliminate any footprints or minor indentations left behind from placing the previous row.
7. The soil surface shall be moist when the sod is placed to reduce heat injury to root hairs. As work progresses row by row, after the next row to be sodded has been raked smooth, mist the soil to moisten the soil prior to placing the sod. Water shall be applied in a manner that does not disturb the prepared soil bed. Method of watering shall be approved by the Engineer.

sodding Time.

1. sod shall be placed in the fall between September 1 and November 15. sod shall not be installed or brought to the site when the temperature is above 80 °F. Installation dates are dependent on weather. Installation might begin or end prior or after above dates as approved by the Engineer. Do not plant when soil is muddy or during frost.
2. Stone outcropping, riprap stone, trees, shrubs, vines, seeding and interseeding must be installed first to establish proper layout and to avoid unnecessary foot traffic once sod has been placed.
3. The Contractor shall be responsible for sod layout. sod bed shall be marked out with flags to delineate the perimeter of each area for sodding as shown in the plans. The Contractor will contact the Roadside Development Unit at to approve the layout prior to installation. Allow a minimum of seven working days prior to installation for approval.
4. Approved watering equipment shall be at the site of the work and in operational condition prior to starting the installation operation and during all installation operations.

Transportation.

1. The Contractor shall transport only the quantity of sod required for one day's installation.
2. All sod shall be properly protected during transportation to maintain it in a live, healthy condition. Care shall be taken to retain the soil on the roots during transport. The Contractor shall use due diligence in keeping the sod cool and evenly moist during transport from the nursery to the project site to avoid root hair pruning (dry back). sod shall be tarped during transport, however, refrigerated transportation may be necessary.

Consult with sod supplier regarding transportation based on timing, distance from nursery to project site, and local forecasted condition.

3. sod shall be subject to inspection and approval at place of growth and/or upon delivery for conformity to specification requirements. Approval at place of growth shall not impair the right of inspection and rejection upon delivery at the site or during the process of the work. Rejected material, any sod that has dried out, has heated to over 100 °F, or is frozen prior to placing will be rejected and shall be immediately removed from the jobsite by the Contractor.

Placing sod.

1. sod shall be installed within 48 hours of being loaded onto the truck.
2. The Contractor shall keep sod moist (near saturation) and cool at all times at the project site. The Contractor shall handle the sod with care to retain soil and minimize root and vegetative damage. Should the roots be dried out, large amount of soil broken or loosen, or areas of the sod damaged, the Engineer may reject the sod roll or portions of the sod roll. Contractor shall immediately remove the rejected sod from the site.
3. The sodding operations shall be done in such manner that workmen will minimize walking on the prepared topsoil surface.
4. Workmen shall have proper tools to trim sod such as a box knife, scissors, or masonry cutting wheel when installing sod. Serrated blades shall not be used.
5. Place sod parallel to slopes. Start placement of sod from the top and work down to avoid unnecessary foot traffic once sod has been placed. The sod shall be placed on the prepared surface 'edge to edge' with tight joints between the rolls to prevent edge dry back and to limit exposure of any soil, but with no overlap. sod shall be placed to create staggered seams between adjoining rows.
6. Secure the sod with 8 - gauge staples using a minimum of one staple per square yard through the center and one staple every 2 feet along the edge of the sod. Additional staples may be required depending on steepness of slope and to staple any areas that exhibit air gaps to ensure the sod has direct root contact with the soil. Staples shall be installed so that they hold the sod firmly in place yet present no danger to pedestrian or mowing crews.
7. Start placement of sod from one end and work in one direction towards the other end to avoid unnecessary foot traffic once sod has been placed.
8. The completed sod surface shall be true to finished grade, even and firm over the entire area. Inspection of sodded areas in whole or in part, will be made by the Engineer after placement of sod. If the inspection discloses any area(s) as being unsatisfactory, the Engineer will give the Contractor the necessary instruction for correction of same, and the Contractor shall immediately comply with such instructions and correct the unsatisfactory work. The limits and magnitude of the repairs are at the discretion of the Engineer. The cost of any repair shall be included in the cost of the pay item and will not be paid for separately. The Contractor shall be responsible for theft or damage to the sod until final acceptance.
9. All materials shall be removed each day from the site, no on-site storage of materials shall be allowed. All sidewalks, driveways, alleys, high mast light towers bases, and pavements shall be left in a broom - cleaned condition.
10. During the life of the contract, within 24 hours upon notification the Contractor shall reinstall sod that has deviated from its original position. The Contractor shall adjust and anchor the sod as necessary to eliminate any open seams. Water sod immediately once repositioned and secured.

sod Watering.

1. A watering schedule shall be submitted to the Engineer immediately upon the first day of installation of sod.
2. Within two hours after the sod has been placed, water (initial) shall be applied at a rate of 6 gallons per square yard.
3. Additional water (part of initial watering) shall be applied every day for the first seven days at a rate of 6 gallons per square yard to maintain sod and soil moisture.
4. Once a week for a four-to-six-week period after installation, supplemental watering shall be applied at a minimum rate of 1" per week (6 gallons per square yard). Depending on the temperature and rainfall, the Engineer may alter the watering schedule by adding or deleting watering cycles. Water shall be applied at the rate specified by the Engineer within 24 hours of notice. Any additional watering required in between the weekly scheduled watering shall be considered as supplemental watering.
5. The Contractor shall have on hand enough equipment to completely water all sodded areas in one day at the watering rates specified above. The Engineer will make periodic checks of the Contractor's watering equipment to determine its adequacy and operation condition.
6. All watering described shall be done with a spray application. An open end hose will not be acceptable. The method of watering shall meet the approval of the Engineer.
7. Water furnished for application shall be free from oil, acid, alkali, salts, or other impurities harmful to the best development of the sod.

Period of Establishment.

1. Prior to being accepted the sod shall endure a period of establishment. This period shall begin when the sod has been placed in any one location and end in June of the following year. To qualify for inspection, sod shall have been in place, in a live healthy condition, on or before November 15 of the previous year of inspection. To be acceptable, sod shall be in a live healthy condition, show a satisfactory growth of the native grasses and forbs specified, it is rooted to the soil, and is free of weeds.
2. At the discretion of the Engineer, final acceptance will be made where sodded areas show a healthy, satisfactory growth of the native grasses and forbs specified, it is rooted to the soil, and is free of weeds. Areas of sod that do not meet the requirements for acceptance shall be replaced the following fall and prior to November 15. Changes in the above dates will be allowed by the Engineer only if extreme weather conditions or other mitigating circumstances so dictate. All replacement sod shall meet and be installed according to the original job specifications. Replacement sod shall undergo a period of establishment according to the original job specifications to be accepted.
3. The Contractor shall remove, immediately from the site of the work, any dead sod. The Contractor will not be permitted to terminate the operation until all sod is in a live, healthy condition. All sod that dies within 15 days after being installed shall be replaced at that time and shall be considered as part of the original installation and have continued establishment care until acceptance.

sod Care (During Period of Establishment).

1. Establishment care is intended to maintain all plants in a healthy and vigorous condition. During the period of establishment, the Contractor shall monitor, remove litter/debris, and properly care for the sod at each location a minimum of once per week, or within 24 hours following notification by the Engineer.

2. The Contractor shall monitor the site a minimum of once per week for emergence of invasive species and simply hand weed by pulling the entire plant and roots. Spraying of herbicides to treat weeds shall not be allowed as the drift can eliminate desirable grasses and forbs. The Contractor shall provide a maintenance schedule for the duration of the project. All requirements for proper care during the period of establishment shall be considered as included in the cost of the contract.
3. The Contractor shall dewater excess water, if necessary, during the establishment period to maintain suitable growing conditions for the establishment of the sod or as directed by the Engineer. See specification for dewatering.
4. The Contractor shall mow the sod to a height of 8 inches when the vegetation reaches a height of 12 - 15" or as directed by the Engineer. See specification for Mowing (Native Area Establishment).
5. Debris must be removed from the right-of-way and disposed of in accordance with Article 202.03 at the end of each day.
6. Additional watering may be required during the period of establishment. The Contractor shall monitor water needs at all sod locations. Water immediately if sod shows signs of stress. Water to ensure that moisture penetrates throughout the root zone and only as frequently as necessary to maintain healthy growth. Do not overwater. Any required additional watering will be paid for as Supplemental Watering.
7. All watering described shall be done with a spray application. An open-end hose will not be acceptable. Force of water dispersal shall not disrupt the soil or plant stability. The manner of watering shall meet the approval of the Engineer.
8. The Contractor will not be relieved in any way from the responsibility for unsatisfactory plants due to the extent of weeding or the amount of watering.

sod Care (After Period of Establishment).

1. Continued establishment care is intended to maintain all plants in a healthy and vigorous condition. After the period of establishment, the Contractor shall continue to monitor the sod at all locations a minimum of once per week. Notify the Engineer of the presence of any weeds or watering needs.
2. When directed by the Engineer, weed control, native landscape enhancement shall be used to remove weeds growing within the sod at locations designated by the Engineer. See specification for Weed Control, Native Landscape Enhancement.
3. The Contractor shall mow the sod to a height of 8 inches when the vegetation reaches a height of 12 - 15" or as directed by the Engineer. See specification for Mowing (Native Area Establishment).
4. Depending upon weather conditions, additional watering may be required after the period of establishment. When directed by the Engineer, supplemental watering shall be used to water the sod at locations designated by the Engineer. See specification Supplemental Watering.

Disposal of Surplus Materials. Surplus and waste material resulting from sodding operations and establishment care shall be disposed of according to Article 202.03.

Method of Measurement.

- a. The native prairie sod, mesic will be measured for payment in place and the area computed in square yards. To be acceptable the sod shall be growing in place in a live, healthy condition, free of weeds, and knitted to the soil as determined by the Engineer. When directed by the Engineer, any defective or unacceptable sod shall be removed, replaced, and watered.
- b. Reworking and moistening the soil surface shall not be measured for payment but included in the cost of native prairie sod, mesic.
- c. The initial and additional watering before the period of establishment will not be measured for payment but considered included in the cost of native prairie sod, mesic.
- d. Supplemental watering will be measured in units of 1000 gallons of water applied on the sodded areas. Watering performed during and after the period of establishment will be considered as supplemental watering.
- e. Weed control, native landscape enhancement will be measured in acres as specified in Weed Control, Native Landscape Enhancement.
- f. Mowing for the native prairie sod, mesic will be measured in acres as specified in Mowing (Native Area Establishment).
- g. Dewatering will be measured in lump sum as specified in dewatering.

Basis of Payment. This work will be paid for at the contract unit price per SQUARE YARD for SODDING (SPECIAL) which price shall include all material, transport, loading, unloading, labor, initial watering, tools, and equipment necessary to furnish, install and establish the sod, initial watering and reworking of crusted topsoil as required, disposal, and incidental items required to complete the work as specified herein and to the satisfaction of the Engineer according to the following schedule.

- a. Initial payment. Upon placement of Native Prairie sod, Mesic 60% of the pay item will be paid.
- b. Final Payment. Upon acceptance of Native Prairie sod, Mesic the remaining 40% of the pay item will be paid.

Supplemental watering will be paid for at the contract unit price per UNIT for SUPPLEMENTAL WATERING.

Weed Control, Native Landscape Enhancement will be paid for at the contract unit price per ACRE for WEED CONTROL, NATIVE LANDSCAPE ENHANCEMENT.

Mowing (Native Area Establishment) will be paid for at the contract unit price per ACRE for MOWING (SPECIAL).

Dewatering will be paid for at the contract unit price per LUMP SUM for DEWATERING.

NATIVE PRAIRIE SOD, FLOODPLAIN

Description: Work under this item shall be performed in accordance with Section 252 of the Standard Specifications except as herein modified. This work shall consist of preparing the ground surface and furnishing, transporting, placing, watering, and establishing native prairie sod and other work items required in the sodding operations as described herein and as directed by the Engineer.

General Requirement. The Contractor shall begin locating native prairie sod, floodplain ("sod") suppliers immediately upon contract award. Due to the time sensitive nature of the sod, the Contractor shall make arrangements for custom grown nursery stock and shall coordinate sufficient lead times with the supplier so that optimum vegetative growth has occurred upon installation.

Quality Assurance Requirements.

1. Sod shall be provided by a qualified nursery having a minimum of five years experience in the growing and installation of vegetated sod or mats composed of native prairie species. References shall be submitted to the Engineer.
2. Qualifications of workmen:
 - a. Provide at least one person/foreman who shall be present at all times during execution of this portion of the work and who shall be thoroughly familiar with the type of materials, design methods, details, etc. being installed and the best methods for their installation and who shall direct all work performed under this specification.
 - b. This designated person/foreman shall be present at all landscape pertinent pre-construction meetings, progress meetings, and on-site throughout the duration of the sodding portion of the project including establishment. This designated individual shall be the main point of contact between all parties involved as it relates to the native sodding.
 - c. This designated person/foreman shall also be the main point of contact for all submittals, samples, and project notifications as outlined herein.
 - d. This designated person/foreman shall be familiar with all drawings and specifications included in the contract documents to ensure continuity for the project and provide clear direction for all involved.
3. Experience Requirement: The person/foreman outlined above must meet the following requirements for approval as the main point of contact for the project:
 - a. Minimum of five years of successful and continuous experience on projects of this type.
 - b. Minimum of five successful project types of this size and scope including cost
 - c. Contractor to provide proof of the above requirements including photographic evidence of projects at installation and at different stages of maturity.
 - d. If applicable, demonstrate previously installed successful projects.

- e. Experience in ecological restoration and the ability to identify and differentiate between the targeted weeds and vegetation to remain.

Materials.

1. The native prairie sod, floodplain ("sod") shall consist of a custom native grass/forb mix seeded into engineered soil with 100% biodegradable coir mat of woven coir fibers evenly machine twisted and spun at 20.5 to 25.5 oz/cu yd. The sod shall be fully rooted with vegetative coverage of no less than 75% by the time of installation. Sod dimensions shall be 3.3' x 11' (four square yards) per roll.
2. Obtain sod from a single nursery source with resources to grow sod of specified consistent quality. The nursery shall have the capacity to grow, cut, and deliver the sod on schedule.
3. Sod shall be planted with the following native grass and forb mix that shall be healthy, vigorous and a minimum average height of 6 to 12 inches. Minimum of 300 seeds/square foot with 60/40 grass to forb ratio based on seed count.

Native Grass Variety

Bromus ciliatus (Fringed Brome)
Carex comosa (Bristly Sedge)
Carex hystericina (Porcupine Sedge)
Carex sprengei (Long-Beaked Sedge)
Carex stipata (Awl-Fruited Sedge)
Carex vulpinoidea (Brown Fox Sedge)
Elymus canadensis (Canada Wild Rye)
Elymus virginicus (Virginia Wild Rye)
Glyceria grandis (American Manna Grass)
Glyceria striata (Fowl Manna Grass)
Juncus effusus (Common Rush)
Panicum virgatum (Switchgrass)
Scirpus atrovirens (Dark-Green Bulrush)
Scirpus cyperinus (Wool Grass)

Native Forb Variety

Asclepias incarnata (Swamp Milkweed)
Baptisia alba (White Wild Indigo)
Campanula americana (Tall Bellflower)
Chamaecrista fasciculata (Partridge Pea)
Echinacea purpurea (Purple Coneflower)
Eupatorium perfoliatum (Common Boneset)
Liatris pycnostachya (Prairie Blazing Star)
Liatris spicata (Marsh Blazing Star)
Lobelia cardinalis (Cardinal Flower)
Lobelia siphilitica (Great Blue Lobelia)
Monarda fistulosa (Wild Bergamot)
Oligoneuron ohioensis (Ohio Goldenrod)
Penstemon digitalis (Foxglove Beardtongue)
Pycnanthemum virginianum (Mountain Mint)

Ratibida pinnata (Yellow Coneflower)
Rudbeckia hirta (Black-Eyed Susan)
Rudbeckia subtomentosa (Sweet Black-Eyed Susan)
Symphyotrichum ericoides (Heath Aster)
Symphyotrichum novae-angliae (New England Aster)
Tradescantia ohiensis (Ohio Spiderwort)
Verbena hastata (Blue Vervain)

Variation in the seed quantities or varieties may be allowed in the event of a crop failure or other unforeseen conditions. Quantities of proposed substitutions shall be determined by seed count. The Contractor shall provide for the approval of the Engineer a written description of the proposed changes to the grass and forb mixture(s), the reasons for the change, and the name of the seed suppliers who were contacted in an effort to obtain the specified species. Adjustments will be made at no cost to the contract. Approval of substitutes shall in no way waive any requirements of the contract.

4. Sod shall be attached to the finished grade with 12", eight-gauge wire, U shaped sod staples which shall be incidental to sod installation.
5. Sod soilless media shall be approved by the Engineer.

Submittals.

1. Photos and references of previous projects for nursery growing sod and Contractor placing sod.
2. Within 60 days of contract award, Contractor must submit proof that a supplier has been located and an ordered placed to custom grow the sod along with schedules for planting, germination, and delivery of mature plantings. sod shall be subject to periodic inspections and approval at place of growth throughout the growing process.
3. Request for Field Report On Inspection of Plant Material form
4. Schedules as specified herein
5. Sample of biodegradable core of the sod mat
6. One quart sample of soilless media
7. Certification letter from authorized nursery representative stating that the seed mixture used in the Native sod conforms to the specification.

Construction Requirements

Ground Preparation.:

1. Fertilizers are not necessary and shall not be applied.
2. Soil contact for the sod is vital. Do not install sod on hard, compacted soil. If standing water is present, dewatering of the site shall be done prior to soil preparation. See specification for Dewatering.
3. The area to be sodded shall be finished according to Section 212 before sodding operations are begun. Before the sod is place, the soil surface shall be worked until it is free from debris, litter, washes, gullies, clods, stones, sticks, and existing vegetation.
4. Finished ground elevations shall allow for the thickness of sod to match grade of existing turf or structures. Additional topsoil required to bring the area to sub grade elevation will

not be paid for separately but considered incidental to the cost of sod. Additional topsoil shall be approved by the Engineer.

5. Immediately prior, but not in excess of 48 hours the surface shall be worked to a depth of no less than 6 inches with a disk, tiller, or other equipment approved by the Engineer, reducing all soil particles to a size no larger than 1 inch in the largest dimension. Prepared surface shall be finished to a fine smooth, uniform finish free of litter, debris, rocks, sticks, and existing vegetation not specified to remain. Prepared soil surfaces that have become crusted shall be reworked to an acceptable condition before sodding. Sod shall not be placed until the soil bed has been approved by the Engineer.
6. Sod shall be placed in rows. To avoid air gaps, as work progresses row by row, the Contractor shall rake smooth the soil in the row to be sodded to eliminate any footprints or minor indentations left behind from placing the previous row.
7. The soil surface shall be moist when the sod is placed to reduce heat injury to root hairs. As work progresses row by row, after the next row to be sodded has been raked smooth, mist the soil to moisten the soil prior to placing the sod. Water shall be applied in a manner that does not disturb the prepared soil bed. Method of watering shall be approved by the Engineer.

Sodding Time.

1. Sod shall be placed in the fall between September 1 and November 15. sod shall not be installed or brought to the site when the temperature is above 80 degrees Fahrenheit. Installation dates are dependent on weather. Installation might begin or end prior or after above dates as approved by the Engineer. Do not plant when soil is muddy or during frost.
2. Stone outcropping, riprap stone, trees, shrubs, vines, seeding and interseeding must be installed first to establish proper layout and to avoid unnecessary foot traffic once sod has been placed.
3. The Contractor shall be responsible for sod layout. sod bed shall be marked out with flags to delineate the perimeter of each area for sodding as shown in the plans. The Contractor will contact the Roadside Development Unit to approve the layout prior to installation. Allow a minimum of seven working days prior to installation for approval.
4. Approved watering equipment shall be at the site of the work and in operational condition prior to starting the installation operation and during all installation operations.

Transportation.

1. The Contractor shall transport only the quantity of sod required for one day's installation.
2. All sod shall be properly protected during transportation to maintain it in a live, healthy condition. Care shall be taken to retain the soil on the roots during transport. The Contractor shall use due diligence in keeping the sod cool and evenly moist during transport from the nursery to the project site to avoid root hair pruning (dry back). sod shall be tarped during transport, however, refrigerated transportation may be necessary. Consult with sod supplier regarding transportation based on timing, distance from nursery to project site, and local forecasted condition.

3. Sod shall be subject to inspection and approval at place of growth and/or upon delivery for conformity to specification requirements. Approval at place of growth shall not impair the right of inspection and rejection upon delivery at the site or during the process of the work. Rejected material, any sod that has dried out, has heated to over 100 degrees Fahrenheit, or is frozen prior to placing will be rejected and shall be immediately removed from the jobsite by the Contractor.

Placing sod.

1. Sod shall be installed within 48 hours of being loaded onto the truck.
2. The Contractor shall keep sod moist (near saturation) and cool at all times at the project site. The Contractor shall handle the sod with care to retain soil and minimize root and vegetative damage. Should the roots be dried out, large amount of soil broken or loosen, or areas of the sod damaged, the Engineer may reject the sod roll or portions of the sod roll. Contractor shall immediately remove the rejected sod from the site.
3. The sodding operations shall be done in such manner that workmen will minimize walking on the prepared topsoil surface.
4. Workmen shall have proper tools to trim sod such as a box knife, scissors, or masonry cutting wheel when installing sod. Serrated blades shall not be used.
5. Place sod parallel to slopes. Start placement of sod from the top and work down to avoid unnecessary foot traffic once sod has been placed. The sod shall be placed on the prepared surface 'edge to edge' with tight joints between the rolls to prevent edge dry back and to limit exposure of any soil, but with no overlap. sod shall be placed to create staggered seams between adjoining rows.
6. Secure the sod with 8 - gauge staples using a minimum of one staple per square yard through the center and one staple every 2 feet along the edge of the sod. Additional staples may be required depending on steepness of slope and to staple any areas that exhibit air gaps to ensure the sod has direct root contact with the soil. Staples shall be installed so that they hold the sod firmly in place yet present no danger to pedestrian or mowing crews.
7. Start placement of sod from one end and work in one direction towards the other end to avoid unnecessary foot traffic once sod has been placed.
8. The completed sod surface shall be true to finished grade, even and firm over the entire area. Inspection of sodded areas in whole or in part, will be made by the Engineer after placement of sod. If the inspection discloses any area(s) as being unsatisfactory, the Engineer will give the Contractor the necessary instruction for correction of same, and the Contractor shall immediately comply with such instructions and correct the unsatisfactory work. The limits and magnitude of the repairs are at the discretion of the Engineer. The cost of any repair shall be included in the cost of the pay item and will not be paid for separately. The Contractor shall be responsible for theft or damage to the sod until final acceptance.
9. All materials shall be removed each day from the site, no on-site storage of materials shall be allowed. All sidewalks, driveways, alleys, high mast light towers bases, and pavements shall be left in a broom - cleaned condition.

10. During the life of the contract, within 24 hours upon notification the Contractor shall reinstall sod that has deviated from its original position. The Contractor shall adjust and anchor the sod as necessary to eliminate any open seams. Water sod immediately once repositioned and secured.

Sod Watering.

1. A watering schedule shall be submitted to the Engineer immediately upon the first day of installation of sod.
2. Within two hours after the sod has been placed, water (initial) shall be applied at a rate of 6 gallons per square yard.
3. Additional water (part of initial watering) shall be applied every day for the first seven days at a rate of 6 gallons per square yard to maintain sod and soil moisture.
4. Once a week for a four-to-six-week period after installation, supplemental watering shall be applied at a minimum rate of 1" per week (6 gallons per square yard). Depending on the temperature and rainfall, the Engineer may alter the watering schedule by adding or deleting watering cycles. Water shall be applied at the rate specified by the Engineer within 24 hours of notice. Any additional watering required in between the weekly scheduled watering shall be considered as supplemental watering.
5. The Contractor shall have on hand enough equipment to completely water all sodded areas in one day at the watering rates specified above. The Engineer will make periodic checks of the Contractor's watering equipment to determine its adequacy and operation condition.
6. All watering described shall be done with a spray application. An open end hose will not be acceptable. The method of watering shall meet the approval of the Engineer.
7. Water furnished for application shall be free from oil, acid, alkali, salts, or other impurities harmful to the best development of the sod.

Period of Establishment.

1. Prior to being accepted the sod shall endure a period of establishment. This period shall begin when the sod has been placed in any one location and end in June of the following year. To qualify for inspection, sod shall have been in place, in a live healthy condition, on or before November 15 of the previous year of inspection. To be acceptable, sod shall be in a live healthy condition, show a satisfactory growth of the native grasses and forbs specified, it is rooted to the soil, and is free of weeds.
2. At the discretion of the Engineer, final acceptance will be made where sodded areas show a healthy, satisfactory growth of the native grasses and forbs specified, it is rooted to the soil, and is free of weeds. Areas of sod that do not meet the requirements for acceptance shall be replaced the following fall and prior to November 15. Changes in the above dates will be allowed by the Engineer only if extreme weather conditions or other mitigating circumstances so dictate. All replacement sod shall meet and be installed according to the original job specifications. Replacement sod shall undergo a period of establishment according to the original job specifications to be accepted.
3. The Contractor shall remove, immediately from the site of the work, any dead sod. The Contractor will not be permitted to terminate the operation until all sod is in a live, healthy

condition. All sod that dies within 15 days after being installed shall be replaced at that time and shall be considered as part of the original installation and have continued establishment care until acceptance.

Sod Care (During Period of Establishment).

1. Establishment care is intended to maintain all plants in a healthy and vigorous condition. During the period of establishment, the Contractor shall monitor, remove litter/debris, and properly care for the sod at each location a minimum of once per week, or within 24 hours following notification by the Engineer.
2. The Contractor shall monitor the site a minimum of once per week for emergence of invasive species and simply hand weed by pulling the entire plant and roots. Spraying of herbicides to treat weeds shall not be allowed as the drift can eliminate desirable grasses and forbs. The Contractor shall provide a maintenance schedule for the duration of the project. All requirements for proper care during the period of establishment shall be considered as included in the cost of the contract.
3. The Contractor shall dewater excess water, if necessary, during the establishment period to maintain suitable growing conditions for the establishment of the sod or as directed by the Engineer. See specification for Dewatering.
4. The Contractor shall mow the sod to a height of 8 inches when the vegetation reaches a height of 12 - 15" or as directed by the Engineer. See specification for Mowing (Native Area Establishment).
5. Debris must be removed from the right-of-way and disposed of in accordance with Article 202.03 at the end of each day.
6. Additional watering may be required during the period of establishment. The Contractor shall monitor water needs at all sod locations. Water immediately if sod shows signs of stress. Water to ensure that moisture penetrates throughout the root zone and only as frequently as necessary to maintain healthy growth. Do not overwater. Any required additional watering will be paid for as Supplemental Watering.
7. All watering described shall be done with a spray application. An open-end hose will not be acceptable. Force of water dispersal shall not disrupt the soil or plant stability. The manner of watering shall meet the approval of the Engineer.
8. The Contractor will not be relieved in any way from the responsibility for unsatisfactory plants due to the extent of weeding or the amount of watering.

Sod Care (After Period of Establishment).

1. Continued establishment care is intended to maintain all plants in a healthy and vigorous condition. After the period of establishment, the Contractor shall continue to monitor the sod at all locations a minimum of once per week. Notify the Engineer of the presence of any weeds or watering needs.
2. When directed by the Engineer, weed control, native landscape enhancement shall be used to remove weeds growing within the sod at locations designated by the Engineer. See specification for Weed Control, Native Landscape Enhancement.

3. The Contractor shall mow the sod to a height of 8 inches when the vegetation reaches a height of 12 - 15" or as directed by the Engineer. See specification for Mowing (Native Area Establishment).
4. Depending upon weather conditions, additional watering may be required after the period of establishment. When directed by the Engineer, supplemental watering shall be used to water the sod at locations designated by the Engineer. See specification Supplemental Watering.

Disposal of Surplus Materials. Surplus and waste material resulting from sodding operations and establishment care shall be disposed of according to Article 202.03.

Method of Measurement.

- a. The native prairie sod, floodplain will be measured for payment in place and the area computed in square yards. To be acceptable the sod shall be growing in place in a live, healthy condition, free of weeds, and knitted to the soil as determined by the Engineer. When directed by the Engineer, any defective or unacceptable sod shall be removed, replaced, and watered.
- b. Reworking and moistening the soil surface shall not be measured for payment but included in the cost of Native Prairie Sod, Floodplain.
- c. The initial and additional watering before the period of establishment will not be measured for payment but considered included in the cost of Native Prairie sod, Floodplain.
- d. Supplemental watering will be measured in units of 1000 gallons of water applied on the sodded areas. Watering performed during and after the period of establishment will be considered as supplemental watering.
- e. Weed control, native landscape enhancement will be measured in acres as specified in Weed Control, Native Landscape Enhancement.
- f. Mowing for the native prairie sod, floodplain will be measured in acres as specified in Mowing (Native Area Establishment).
- g. Dewatering will be measured in lump sum as specified in Dewatering.

Basis of Payment. This work will be paid for at the contract unit price per SQUARE YARD for NATIVE SODDING, SPECIAL which price shall include all material, transport, loading, unloading, labor, initial watering, tools, and equipment necessary to furnish, install and establish the sod, initial watering and reworking of crusted topsoil as required, disposal, and incidental items required to complete the work as specified herein and to the satisfaction of the Engineer according to the following schedule.

- a. Initial payment. Upon placement of native prairie sod, floodplain 60% of the pay item will be paid.
- b. Final Payment. Upon acceptance of native prairie sod, floodplain the remaining 40% of the pay item will be paid.

Supplemental watering will be paid for at the contract unit price per UNIT for SUPPLEMENTAL WATERING.

Weed Control, Native Landscape Enhancement will be paid for at the contract unit price per ACRE for WEED CONTROL, NATIVE LANDSCAPE ENHANCEMENT.

Mowing for the Native Prairie sod, Floodplain will be paid for at the contract unit price per ACRE for MOWING (SPECIAL).

Dewatering will be paid for at the contract unit price per LUMP SUM for DEWATERING.

DEWATERING

Description: This work consists of providing labor, tools, equipment, and materials necessary to dewater the related surface work areas of the project to relatively dry conditions and maintain suitable working conditions so that the improvements may be constructed in the dry as shown in the plans and as directed by the Engineer.

This may include dewatering, if necessary, for the installation of native prairie sod and to maintain suitable growing conditions during the establishment period of the native prairie sod or as directed by the Engineer. See specification for Native Prairie Sod.

Dewatering of trenches and excavations for sewers, water mains, utility installations and other underground work as well as removals of existing sewers and water mains and associated structures is not included within this item.

Materials. Contractor shall be responsible for the choice of the product(s) and equipment as well as "means and methods" for the site dewatering work to be performed subject to the review of the Engineer. All products and "means and methods" selected shall be adequate for the intended use/application. Engineer's review does not relieve the Contractor from compliance with the requirements of the contract and the requirements of this special provision.

Submittals. Contractor shall submit to the Engineer for review a description of dewatering techniques and equipment to be used, together with detail drawings showing lengths of discharge piping and point(s) of discharge including erosion control procedures. The Engineer's review of dewatering techniques and equipment shall in no way be construed as creating any obligation on the part of Engineer for same.

Responsibility. The Contractor shall be solely responsible for the choice of product(s) and equipment; for the design, installation, and operation; as well as "means and methods" of performing the work; and subsequent removal of dewatering systems and their safety and conformity with local codes, regulations, and these specifications. All product(s), equipment and "means and methods" selected shall be adequate for the intended use/application. Review by Engineer does not relieve Contractor from compliance with the requirements specified herein.

General Requirements. The Contractor shall select the pumps he/she desires to use and the rate at which the pumps discharge. Adequate protection at the pump discharge shall be provided by the Contractor, subject to review by the Engineer. The Contractor shall ensure that downstream water quality shall not be impaired. At all times during the excavation period and until completion and acceptance of the work at final inspection, ample means and equipment shall be provided

with which to remove promptly and dispose of properly all water entering any excavation or any other parts of the Work.

Water pumped or drained from the work required for this contract shall be disposed of in a safe and suitable manner without damage to adjacent property or streets or to other work under construction. Water shall not be discharged onto streets without adequate protection of the surface at the point of discharge. No water shall be discharged into sanitary sewers. No water containing settleable solids shall be discharged into storm sewers. Any and all damages caused by dewatering the work shall be promptly repaired by the Contractor. The Contractor is responsible for providing all labor, materials and equipment needed for the dewatering to meet the scheduled completion of the project.

Method of Measurement. This work will be measured for payment on a lump sum basis.

Basis of Payment. This work will be paid for at the contract unit price per LUMP SUM for DEWATERING, which price shall include all material, equipment, labor, and disposal of material necessary to complete the work as specified herein. No payment under this item shall be made for dewatering of trenches and excavations for sewers, water mains, utility installations and other underground work as well as removals of existing sewers and water mains and associated structures.

MOWING (NATIVE AREA ESTABLISHMENT)

Description: This work shall consist of mowing/trimming native sod to the height of 8". These areas may not be able to be mowed with typical roadside mowing equipment.

Schedule. Mow when vegetation reaches a height of 12 - 15" or as directed by the Engineer.

Equipment. The Contractor shall keep all mowing equipment sharp and properly equipped for operation within an urban arterial route. The equipment used shall be capable of completely severing all growth at the cutting height and distributing it evenly over the mowed area. Special equipment may be required to cut small, designated areas.

Method. All mowing and trimming operations are to proceed in the direction of traffic flow. The cut material shall not be windrowed or left in a lumpy or bunched condition. All drain inlets must be kept clean and draining freely. Additional mowing or trimming may be required to obtain the height specified or to disperse mowed material. When amount of cut vegetation is heavy, cut vegetation shall be removed to prevent destruction of underlying turf and/or disrupting water flow. If weeds or other undesirable vegetation threatens to smother planted species, or in case of weeds exceeding growth of planted species, at the direction of the Engineer, the weeds shall be uprooted, raked and removed from the area.

Remove litter, including plastic bags, paper, bottles, etc. prior to mowing. Debris encountered during the mowing operations shall be removed and disposed of according to Article 202.03. All trimmings, windrowed material, litter, and debris removal must be complete to the satisfaction of the Engineer. Damage to the turf, such as ruts or wheel tracks more than 2 inches in depth, scalping of the mowed areas, or other plantings or highway appurtenances caused by the mowing

or trimming operation shall be repaired at the Contractor's expense and to the satisfaction of the Engineer.

Method of Measurement. Mowing and trimming will be measured in acres of surface area mowed at the completion of each mowing cycle.

Basis of Payment. This work will be paid for at the contract unit price per ACRE for MOWING (SPECIAL). Any additional mowing or trimming required to obtain the height specified or to disperse mowed material will be considered as included in the cost of the initial mowing. Payment for mowing and trimming shall include the cost of all material, equipment, labor, removal, disposal, and incidentals required to complete the work as specified herein and to the satisfaction of the Engineer.

WEED CONTROL, NATIVE LANDSCAPE ENHANCEMENT

Description. This work shall consist of controlling and/or removing invasive weeds (woody and herbaceous) growing within select native landscapes (prairies, savannahs, woodlands, wetlands, etc.) for ecological management purpose through cultural methods, physical removal, or the application of appropriate herbicides. Weed control priorities are to approach eradication of targeted weed species, encourage the healthy growth of native species, and increase overall site biodiversity. The intent is to develop a dense stand of desirable native species with minimal weed content and minimal threat from invasive species or aggressive native species.

It is anticipated that various methods of weed control including spot herbicide application, spot mowing, and small tree/brush removal will be required depending on the location, type of weeds, and size of weed infestation. The work required under this contract will be accomplished utilizing tools that can be operated by hand (including walk-behind). The use of large (sit on/sit in) equipment is not anticipated.

Prosecution of Work. Individual weed species may be targeted and shall be spot sprayed during the appropriate growth stage. Multiple weed species may be treated during each site visit. Weed control must be completed in a timely manner. Prior to beginning work, Contractor shall submit a proposed work schedule to the Engineer outlining when the required tasks will be completed.

This contract is to be completed as directed by the Engineer. All equipment, method, and/or herbicides shall be approved by the Engineer prior to the start of work. Mixtures of herbicides used shall be determined by the Engineer on a site-by-site basis and will be dependent on the species being targeted, area where work is being performed, and the time of year the work is being performed.

The Engineer must be present during all work. Any work completed without the Engineer present will not be measured for payment. Unless otherwise agreed to by the Engineer, all work for this contract is to be completed Monday - Friday between the hours of 7:00 AM-4:30 PM. Work will not be allowed during State of Illinois observed holidays unless otherwise agreed to by the Engineer.

The Contractor shall submit for approval labels for all proposed herbicides, including the following, prior to starting work:

1. The chemical names of the compound and the percentage by weight of the ingredients.
2. A statement that the material will form a satisfactory emulsion for use when diluted with water for normal spraying conditions.
3. A statement that the herbicide, when mixed with water, will be completely soluble and dispersible and remain in suspension with continuous agitation.
4. A statement describing the products proposed for use when the manufacturer requires that surfactants, drift control agents, or other additives be used with the product. These tank mix additives shall be used as specified by the manufacturer. Required additives will not be paid for separately.
5. Calibration of equipment.
6. Initial herbicide mixing and any additional herbicide mixing.
7. Assessment of herbicide application coverage.

All herbicide material shall be brought to the spray area in the original, unopened containers supplied by the manufacturer.

Experience. All work shall be performed by a Contractor with at least five years of documented experience in vegetation management for the purposes of ecological restoration within sensitive plant communities. At a minimum, Contractor shall have a minimum of two years of documented experience in the use of herbicides for vegetation management within Illinois natural areas that include at least one of the following:

- A natural community with endangered and threatened species
- Natural areas included on the Illinois Natural Areas Inventory (INAI) for high floristic quality
- Dedicated nature preserves
- Registered land and water reserves

At or prior to the pre-construction meeting, the Contractor shall furnish copies of required personnel training records, documented personnel experience, required certifications, and proposed equipment lists to the Engineer. Documentation of Contractor's experience must be provided using the attached form or similar format.

Staff. The Contractor shall provide staff that meet these minimum requirements:

Project Manager. The Contractor shall designate an employee as the project manager (PM). This person shall be the sole representative of the Contractor for this work and shall be the point of contact for the Engineer. The PM shall meet the following minimum qualifications:

- At a minimum, hold a bachelor's degree in natural resources, ecology, biology, or a related field
- Have a minimum of five years of documented full-time professional ecosystem restoration experience in Midwestern ecosystems/habitat types
- Have a minimum of one year of documented full-time field experience in ecosystem restoration
- Hold a current State of Illinois Pesticide Commercial Applicator license with the Rights- of- Ways and Aquatics categories

- If they meet the minimum requirements, the project manager can fulfill the crew supervisor role and/or serve as a crew member.

Crew Supervisor. The Contractor shall designate an employee as the crew supervisor. This person shall be on- site during all work activities, at a minimum the crew supervisor shall meet the following qualifications:

- Have five years documented full-time field experience in ecosystem restoration
- Hold a current State of Illinois Pesticide Commercial Applicator license with the Rights- of- Ways and Aquatics categories
- Have two or more years of documented experience in the use of herbicides for vegetation management within Illinois natural areas that include at least one of the following:
 - A natural community with endangered and threatened species
 - Natural areas included on the Illinois Natural Areas Inventory (INAI) for high floristic quality
 - Dedicated nature preserves
 - Registered land and water reserves
- If they meet the minimum requirements, the crew supervisor can fulfill the project manager role and/or serve as a crew member.

Crew Members. All crew members must demonstrate the following:

- A minimum of one year documented full-time field experience in ecosystem restoration
- Hold a current State of Illinois Pesticide Commercial Operator or Applicator license registered to the Contractor's Commercial Pesticide Applicator's license.
- A minimum of 50% of the crew members applying herbicide shall have two or more years of documented experience in the use of herbicides for vegetation management within Illinois natural areas that include at least one of the following:
 - A natural community with endangered and threatened species
 - Natural areas included on the Illinois Natural Areas Inventory (INAI) for high floristic quality
 - Dedicated nature preserves
 - Registered land and water reserves
- The Crew Supervisor may count toward the 50% crew member experience requirement if they are applying herbicide as a crew member.

If the personnel on the job do not have the proper license or experience, the job will be postponed until personnel who carry the proper license are on the job, with no additional payment awarded to the Contractor.

All staff provided by the Contractor to complete this work shall demonstrate familiarity with local native and exotic plants. Contractor's staff shall be able to identify such species and have experience with selective species removal techniques. All staff applying herbicide under the Contractor's supervision must be knowledgeable of native flora in Illinois and be able to recognize and avoid spray application to rare plants (especially state threatened or endangered species).

Materials.

Water. Potable water shall be used on the contract. No water will be allowed to be pumped from nearby creeks, ponds, or other bodies of water unless dictated by emergency need. The Contractor shall provide a list of source locations where the potable water will be obtained. The Contractor shall provide this list to the Engineer at or prior to the pre-construction meeting. All proposed sources of water shall meet the approval of the Engineer prior to mobilizing for any work.

Marking Dye. Marking dye shall be mixed with the approved herbicide and water.

Equipment. Contractor is solely responsible for transport, operation, repair, maintenance, and extraction of their equipment. The Contractor shall provide all equipment and materials needed for execution of the work; at a minimum the following items are required:

Vehicles

- One vehicle or trailer equipped with water tanks capable of holding a minimum of 60 gallons, water tanks shall be equipped with pumps as necessary to accommodate the filling of backpack sprayers.

Hand Tools. At a minimum the Contractor shall have the following hand tools on site:

- Backpack Sprayers – Minimum of one per crew member, plus a minimum of two additional for backup
- Brush Cutters – Minimum of one per crew member, plus a minimum of one additional for backup (with additional fuel/batteries)
- Chainsaw – Minimum of two (with additional fuel/batteries)

Personal Protective Equipment (PPE). Each of the Contractor's employees shall have all necessary personal protective equipment for herbicide and mowing work, at a minimum this shall include:

- Long pants
- Long-sleeved shirt
- Boots
- Safety glasses
- Chemical resistant rubber gloves
- Protective Chainsaw Chaps
- Hardhat with face shield
- Hearing protection
- Any other PPE required for this work by the Department, OSHA, the herbicide label, equipment manufacturer, or any other regulatory body.

Miscellaneous

- Clean measuring cups with legible markings in standard liquid measure (ounces), measuring cups shall be made of transparent material
- Basin or other equipment to protect the ground during herbicide mixing
- A fully stocked first aid kit shall be readily available to all crew members, including a mobile eyewash station

Execution. The Contractor shall keep a log of all maintenance activities performed during the contract period and shall submit it to the Engineer following each workday.

Contractor shall utilize equipment having low unit pressure ground contact within work areas. They shall take precautions to ensure that equipment and vehicles do not damage the grading, utilities, structures, or existing non-target vegetation during weed control operations. Any damage shall be repaired by the Contractor at no additional cost. The capacity of the equipment shall be sufficient to perform the work and in the time period as specified herein, and as approved by the Engineer.

Herbicide spraying will not be allowed when temperatures exceed 85°F or are under 45°F, when wind velocities exceed 10 miles per hour, when foliage is wet or rain is eminent, when visibility is poor, or during legal holiday periods unless prior approval is received from the Engineer. There shall be no spraying during periods of rainfall and spraying shall be halted, in accordance with the herbicide manufacturer's instructions, prior to periods of rainfall. Spraying shall be in accordance with the applicable portions of Section 107.

Within 48 hours of the application of pesticides, including but not limited to herbicides, insecticides, algaecides, and fungicides, the Contractor shall complete and return to the Engineer, Operations form "OPER 2720". OPER 2720 may be found at the following link:

<http://www.idot.illinois.gov/Assets/uploads/files/IDOT-Forms/OPER/OPER%202720.docx>

The Contractor will be required to have all equipment in proper working order before starting the job. An inspection of the Contractor's equipment will be completed by the Engineer prior to starting any work. If equipment is not working properly, the Contractor will be required to fix the problem prior to starting the work. The Contractor may be required to demonstrate the calibration of their equipment up to 48 hours prior to the time of spraying operations are to begin.

Spot Mowing. Spot mowing shall be conducted with the use of a hand-held gas-powered brush cutter equipped with a metal tri-blade (such as the Stihl FS240 equipped with the Stihl Brush Knife tri-blade or similar) and/or walk-behind brush cutters (such as Billy Goat BC26 or similar) targeting areas containing a mix of weed species and mature/flowering desirable native species. Spot mowing shall be utilized to eliminate the reproduction of non-native and non-desirable native species by not allowing the dispersal of seed from those targeted species.

Species targeted for spot mowing shall include removal of plant reproductive parts (e.g., flower stalks, un-developed seed heads, etc.). Spot mowing of perennial species may be conducted in concert with or be followed up with herbicide applications at the Engineer's direction.

Spot-mown vegetative materials shall be left on-site in a manner that will not allow regeneration or seed set of the mown species. Weeds shall be removed in a manner that does not damage the underlying native grasses and forbs. The cut material from common reed (*Phragmites australis*), teasel species (*Dipsacus* spp.), and thistle species (*Cirsium* spp.) shall be removed and disposed of according to Article 202.03.

Spot Herbicide Applications. Small, scattered populations or individual specimens of undesirable species shall be controlled with spot herbicide applications mixed with a marking dye. The following methods are appropriate:

- **Backpack Spray Treatments** – Contractor shall utilize a minimum 4-gallon backpack style sprayer (such as Birchmeier Iris 15 AT3 or similar).

- Herbicide Wicking – In areas of high-quality native vegetation where desirable species are directly adjacent to targeted plants, or where the growth habit of the target plant makes it impossible to avoid off-target damage, the appropriate herbicide shall be selectively wiped onto the target plant utilizing a sponge-wicking applicator or a cloth glove saturated with herbicide worn over an appropriate chemical resistant glove (a common technique referred to as “hand-wicking”).

Treatment Of Woody Species. The Contractor shall remove target woody species that are less than 6”) DBH* utilizing hand-operated equipment, such as chainsaws, brush cutters, handsaws, or loppers. Upon approval by the Engineer, small walk behind mower-type brush cutters may be utilized provided that their use does not result in rutting or pitting of the soil while in operation. *(*Due to IDOT policy, the cutting of trees measuring 3” in diameter or larger at 4.5 feet above the highest ground level at the base of the tree is restricted to be completed only between November 1 to March 30. If the Contractor is executing Weed Control, Native Landscape Enhancement outside of these dates, they will be required to leave any of these restricted trees in place until the appropriate time.)*

The Contractor shall conduct woody species herbicide treatments to all cut-stumps, re-sprouts, re-growth, or other remaining live plants of all target species.

Woody species herbicide treatments may be applied using foliar applications and/or cut-stump application using an appropriate herbicide and marking dye.

- Foliar Treatment: Apply an appropriate herbicide spray mixture to the leaves of target species after leaves have fully opened in the spring and up to a few weeks prior to fall senescence. Provide full coverage of the leaves while limiting overspray and dripping. To reduce the chance for overspray, Foliar Treatments shall only be applied to smaller re-sprouts that are low to the ground.
- Cut-Stump Treatment: All cut-stumps shall be treated with an appropriate herbicide spray mixture immediately after cutting (no longer than eight hours following cutting). Treat the cut area around the edge with herbicide so the cambium layer will take up the active ingredient. *Juniper spp* that have been cut below the last bottom branch shall be exempt from herbicide requirements.

Wherever possible herbicide applications to woody species shall be accomplished by utilizing wick or sponge-type applicators.

All cuttings longer than one foot in length and/or larger than 1 inch in diameter shall be piled within the project site at locations approved by the Engineer. The cut material shall be removed and disposed of according to Article 202.03. Smaller cuttings and cutting debris that have been shredded or chipped using hand-held mechanical equipment may be left on site. Cuttings and cutting debris shall not be allowed to accumulate to a depth that will smother existing desirable native species or prevent existing desirable native species from emerging (approximately 1/2” maximum depth).

Remove litter, including plastic bags, paper, bottles, etc. prior to weed control. All weeds, litter, and debris removal must be complete to the satisfaction of the Engineer and disposed of according to Article 202.03.

Method of Measurement. The work will be measured in units of 1 square acre of surface area effectively treated as determined by the Engineer.

If the inspection discloses any work as being unsatisfactory, the Engineer will give the Contractor the necessary instructions for correction of same, and the Contractor shall immediately comply with such instructions and correct the unsatisfactory work within seven calendar days.

Areas not meeting the satisfaction of the Engineer shall not be measured for payment. Plan quantities are estimates only. Actual quantities will be measured in place. Agreement to plan quantities will not be allowed.

Removal and disposal of debris will not be measured separately but shall be considered included. Disposal of material shall be done in accordance with Article 202.03.

Basis of Payment. This work will be paid for at the contract unit price per ACRE for WEED CONTROL, NATIVE LANDSCAPE ENHANCEMENT, which price includes all labor, material, equipment, removal, disposal, and incidentals required to complete the work as specified herein and to the satisfaction of the Engineer.

Appendix A – List Of Target Weed Species

It is the responsibility of the Contractor to locate, identify, and treat targeted species that may endanger the long-term health of existing native plant communities within the project area/site. Following is a list of targeted invasive and weedy species that can inhibit the successful establishment of desirable native species. This list is not representative of the site and should not be considered an inventory. When present, the listed species shall be targeted by the Contractor:

| | |
|-----------------------------------|---------------------------------------|
| Ailanthus altissima | TREE OF HEAVEN |
| Alliaria petiolate | GARLIC MUSTARD |
| Anthriscus sylvestris | WILD CHERVIL |
| Arctium minus | BUR DOCK |
| Carduus nutans | MUSK THISTLE ¹ |
| Celastrus orbiculatus | ASIAN BITTERSWEET ¹ |
| Centaurea maculosa | SPOTTED KNAPWEED |
| Cirsium arvense | CANADA THISTLE ¹ |
| Cirsium vulgare | BULL THISTLE |
| Conium maculatum | POISON HEMLOCK ¹ |
| Dipsacus spp. | TEASEL ¹ |
| Elaeagnus spp. | OLIVE ¹ |
| Fallopia japonica | JAPANESE KNOTWEED ¹ |
| Heracleum mantegazzianum | GIANT HOGWEED |
| Lonicera spp. | HONEYSUCKLE (non-native) ¹ |
| Lotus corniculatus | BIRDS FOOT TREFOIL |
| Lythrum salicaria | PURPLE LOOSESTRIFE |
| Melilotus albus | WHITE SWEET CLOVER |
| Melilotus officinalis | YELLOW SWEET CLOVER |
| Microstegium vimineum | JAPANESE STILTGRASS |
| Morus alba | WHITE MULBERRY |
| Pastinaca sativa | WILD PARSNIP |
| Phalaris arundinacea | REED CANARY GRASS |
| Phragmites australis (non-native) | COMMON REED (non-native) |

| | |
|-----------------------|-------------------|
| Pyrus spp. | ORNAMENTAL PEAR |
| Rhamnus spp. | BUCKTHORN |
| Robinia pseudoacacia | BLACK LOCUST |
| Rumex crispus | CURLY DOCK |
| Rosa multiflora | MULTIFLORA ROSE |
| Salix interior | SANDBAR WILLOW |
| Saponaria officinalis | BOUNCING BET |
| Securigaria varia | CROWN VETCH |
| Solidago sempervirens | SEASIDE GOLDENROD |

¹Species classified as a noxious weed in the State of Illinois as of the date of this document

Appendix B – Glossary Of Terms Used In This Special Provision

Growing Season: The part of a calendar year during which rainfall and temperature allow plants to grow. In the Midwest the growing season typically occurs between the months of April thru October or November.

Invasive Species: An undesirable species of plant or animal, often non-native, that competes with desirable, native plants and animals for light, space, water, food, and nutrients. An invasive species, left untreated, will destroy the integrity of an ecosystem and will often become the only plant or animal inhabiting a particular landscape.

Native Species:

- 1) an indigenous species that is normally found as part of a particular ecosystem.
- 2) a species that was present in a defined North American area prior to European settlement.

Plant Community: A group of plants that need a particular set of environmental conditions (i.e., light, soil type, moisture) to thrive. Examples include dry prairie, mesic prairie, wet prairie, wetland, emergent, savanna, dry-mesic woodland, etc.

Weedy Species: A species that displays weedy characteristics, such as:

- 1) an excessive growth habit that may inhibit the healthy growth of other more desirable native species
- 2) the ability to produce an abundance of seed, spread rapidly, and inhibit the healthy growth of other more desirable native species
- 3) an extensive root system or other vegetative structure that spreads aggressively above or below ground
- 4) the ability to produce chemicals that are toxic to surrounding plants (allelopathy).

IRRIGATION SYSTEM, SPECIAL

Description. This item of work shall consist of furnishing all work and materials, appliances, tools, equipment, facilities, transportation, and services necessary for and incidental to performing all operations in the installation of underground sprinkler irrigation system complete (all taps), as shown on the drawings and/or specified herein, in accordance with Sections 561, 562, 563, and 565 of the Standard Specifications and the Standard Construction Details, except as herein modified. When the term "Contractor" is used in this section, it shall refer to the irrigation contractor.

Quality Assurance. The following codes, regulations, reference standards, and specifications apply to work included in this section: ASTM: D2241, D2464, D2466, D2564, and D855. Unless otherwise noted on the plans, all materials shall be new.

Warranty. The manufacturer shall warranty material for one year including replacement of defective materials.

Submittals. The Contractor shall submit shop drawings or manufacturer's "cut sheet" for each type of sprinkler head, pipe, controller, valves, check valve assemblies, valve boxes, wire, conduit, fittings, and all other types of fixtures and equipment which he/she proposes to install on the job. The submittal shall include the manufacturer's name, model number, equipment capacity, and manufacturer's installation recommendation, if applicable, for each proposed item.

No partial submittal will be accepted. After the submittal has been approved, substitutions will not be allowed except by written consent of the Engineer. Shop drawings shall include dimensions, elevations, construction details, arrangements, and capacity of equipment, as well as manufacturer's installation recommendations.

Basis of Payment. This work will be paid for at the contract unit price per LUMP SUM for IRRIGATION SYSTEM, SPECIAL which price shall be payment in full for all labor, material, equipment, and services downstream of the RPZ valve necessary for providing the landscape irrigation systems in a serviceable, fully operational manner, including, but not limited to, excavation and backfilling, furnishing and installing the piping system, spray heads, wiring, solenoid control valves, isolation valves, valve boxes and automatic controls, electrical connections, system testing and maintenance, owner personnel training, piping and equipment identification, plumbing permits and inspection fees, valve tags and charts, and all supports, sleeves, fittings, valves, meters, and accessories.

TRAFFIC CONTROL AND PROTECTION (ARTERIALS)

Effective: February 1, 1996

Revised: March 1, 2011

Specific traffic control plan details and special provisions have been prepared for this contract. This work shall include all labor, materials, transportation, handling and incidental work necessary to furnish, install, maintain and remove all traffic control devices required as indicated in the plans and as approved by the Engineer.

When traffic is to be directed over a detour route, the Contractor shall furnish, erect, maintain and remove all applicable traffic control devices along the detour route according to the details shown in the plans.

Method of Measurement. All traffic control (except "Traffic Control and Protection (Expressways)" and temporary pavement markings) indicated on the traffic control plan details and specified in the special provisions will be measured for payment on a lump sum basis.

Basis of Payment. All traffic control and protection will be paid for at the contract unit price per LUMP SUM for TRAFFIC CONTROL AND PROTECTION, (SPECIAL).

Temporary pavement markings will be paid for separately unless shown on a standard.

TRAFFIC CONTROL PLAN

Effective: September 30, 1985

Revised: January 1, 2007

Traffic control shall be according to the applicable sections of the Standard Specifications, the Supplemental Specifications, the "Illinois Manual on Uniform Traffic Control Devices for Streets and Highways", any special details and highway standards contained in the plans, and the special provisions contained herein.

Special attention is called to Article 107.09 of the Standard Specifications and the following highway standards, Recurring Special Provisions and special provisions contained herein, relating to traffic control.

The Contractor shall contact the District One Bureau of Traffic at least 72 hours in advance of beginning work.

STANDARDS: 701001, 701006, 701101, 701106, 701301, 701311, 701426, 701427, 701501, 701502, 701601, 701602, 701606, 701426, 701427, 701701, 701801, 701901, 704001, 720001, 720006, 780001, 781001, and 782006.

DETAILS: TC-10, TC-11, TC-13, TC-14, TC-16, TC-22, TC-21, and TC-26.

SPECIAL PROVISIONS:

- Public Convenience and Safety (D1)
- Speed Display Trailer (BDE)
- Maintenance of Roadways
- Traffic Control and Protection (Arterials)

Temporary Information Signing
Work Zone Traffic Control Devices (BDE)
Detour Signing
Raised Reflective Pavement Marker, Reflector Removal
Raised Reflective Pavement Marker, Reflector Replacement
Short Term and Temporary Pavement Markings (BDE)
Vehicle and Equipment Warning Lights (BDE)

DETOUR SIGNING

Description. This work shall consist of coordinating, furnishing, installing, maintaining, monitoring, relocating, covering, uncovering, and removing all traffic control devices and detour signs in accordance with the plans, Section 701 of the Standard Specifications, and as approved by the Engineer.

Detour Signing required under this item includes barricades/drums, type III barricades, and all temporary signing necessary to mark the detours as shown on the plan detour sheets. This item will also include changing the message on the changeable message signs, though the changeable message signs will be paid for separately. This work will also include covering existing signs that conflict with any of the detour signs and shall also include covering or removing the detour signs when the detour is not in effect as directed by the Engineer.

All detour signs shall be in new or like new condition at the start of the project. If a sign is damaged or becomes unreadable, the sign shall be replaced by a new or like new sign.

Materials. The materials for detour signs used shall be in accordance with Section/Articles 1090, 1091, 1006.29, 1007.05, and 1106.01 of the Standard Specifications

Method of Measurement. This work will be measured for payment on a lump sum basis and shall include furnishing, erecting, and maintaining detour route signs at locations indicated in the plans.

Basis of Payment. This work will be paid for at the contract unit price per LUMP SUM for DETOUR SIGNING.

TEMPORARY INFORMATION SIGNING

Effective: November 13, 1996

Revised: January 29, 2020

Description. This work shall consist of furnishing, installing, maintaining, relocating for various states of construction and eventually removing temporary informational signs. Included in this item may be ground mount signs, skid mount signs, truss mount signs, bridge mount signs, and overlay sign panels which cover portions of existing signs.

Materials. Materials shall be according to the following Articles of Section 1000 - Materials:

| | <u>Item</u> | <u>Article/Section</u> |
|-----|-------------------------|------------------------|
| a.) | Sign Base (Note 1) | 1090 |
| b.) | Sign Face (Note 2) | 1091 |
| c.) | Sign Legends | 1091 |
| d.) | Sign Supports | 1093 |
| e.) | Overlay Panels (Note 3) | 1090.02 |

Note 1. The Contractor may use 5/8 inch instead of 3/4 inch thick plywood.

Note 2. The sign face material shall be in accordance with the Department's Fabrication of Highway Signs Policy.

Note 3. The overlay panels shall be 0.08 inch thick.

GENERAL CONSTRUCTION REQUIREMENTS

Installation. The sign sizes and legend sizes shall be verified by the Contractor prior to fabrication.

Signs which are placed along the roadway and/or within the construction zone shall be installed according to the requirements of Article 701.14 and Article 720.04. The signs shall be 7 ft above the near edge of the pavement and shall be a minimum of 2 ft beyond the edge of the paved shoulder. A minimum of two posts shall be used.

The attachment of temporary signs to existing bridges, sign structures or sign panels shall be approved by the Engineer. Any damage to the existing signs and/or structures due to the Contractor's operations shall be repaired or signs replaced, as determined by the Engineer, at the Contractor's expense.

Method of Measurement. This work shall be measured for payment in square feet edge to edge (horizontally and vertically). All hardware, posts or skids, supports, bases for ground mounted signs, connections, which are required for mounting these signs will be included as part of this pay item.

Basis of Payment. This work shall be paid for at the contract unit price per SQUARE FOOT for TEMPORARY INFORMATION SIGNING.

MAST ARM SIGN PANELS

Effective: May 22, 2002

Revised: July 1, 2015

Add the following to Article 720.02 of the Standard Specifications:

Sign stiffening channel systems shall be aluminum and meet the requirements of ASTM 6261-T5. Sign mounting banding, buckles and buckle straps shall be manufactured from AISI 201 stainless steel.

TRAFFIC SIGNAL GENERAL REQUIREMENTS

Effective: May 22, 2002

Revised: March 1, 2024

These traffic signal special provisions and the "District One Standard Traffic Signal Design Details" supplement the requirements of the Standard Specifications for Road and Bridge Construction." The intent of these special provisions is to prescribe the materials and construction methods commonly used for traffic signal installations.

All material furnished shall be new unless otherwise noted herein. Traffic signal construction and maintenance work shall be performed by personnel holding current International Municipal Signal Association (IMSA)/Illinois Public Service Institute (IPSI) Traffic Signal Technician Level II certification. A copy of the certification shall be immediately available upon request of the Engineer. The work to be done under the Contract consists of furnishing, installing, and maintaining all traffic signal work and items as specified in the plans and as specified herein in a manner acceptable and approved by the Engineer.

Definitions of Terms. Add the following to Section 101 of the Standard Specifications:

101.56 Manufacturer. Company that sells a particular type of product directly to the Contractor or the Vendor.

101.57 Vendor. Company that supplies, represents, and provides technical support for IDOT District One approved traffic signal controllers and other related equipment. The Vendor shall be located within IDOT District One and shall:

- (1) Be full service with on-site facilities to assemble, test and troubleshoot traffic signal controllers and cabinet assemblies.
- (2) Maintain an inventory of IDOT District One approved controllers and cabinets.
- (3) Be staffed with permanent sales and technical personnel able to provide traffic signal controller and cabinet expertise and support.
- (4) Have technical staff that hold current IMSA/IPSI Traffic Signal Technician Level III certification and shall attend traffic signal turn-ons as well as cabinet and/or controller modifications.

Submittals. Revise Article 801.05 of the Standard Specifications to read:

"All material approval requests shall be submitted electronically following District guidelines unless directed otherwise by the Engineer. Submittal requirements shall include, but not limited to the following:

- (1) All material approval requests shall be made prior to or no later than the date of the preconstruction meeting. A list of major traffic signal items can be found in Article 801.05. Material or equipment which is similar or identical shall be the product of the same manufacturer, unless necessary for system continuity. Traffic signal materials and equipment shall bear the U.L. label whenever such labeling is available.
- (2) Product data and shop drawings shall be assembled by pay item. Only the top sheet of each pay item submittal will be stamped by the Department with the review status, except shop drawings for mast arm pole assemblies and the like will be stamped with the review status on each sheet.

- (3) Original manufacturer published product data and shop drawing sheets with legible dimensions and details shall be submitted for review.
- (4) When hard copy submittals are necessary, four complete copies of the manufacturer's descriptive literatures and technical data for the traffic signal materials shall be submitted. For hard copy or electronic submittals, the descriptive literature and technical data shall be adequate for determining whether the materials meet the requirements of the plans and specifications. If the literature contains more than one item, the Contractor shall indicate which item or items will be furnished.
- (5) When hard copy submittals are necessary for structural elements, four complete copies of the shop drawings for the mast arm assemblies and poles, and the combination mast arm assemblies and poles showing, in detail, the fabrication thereof and the certified mill analyses of the materials used in the fabrication, anchor rods, and reinforcing materials shall be submitted.
- (6) Partial or incomplete submittals will be returned without review.
- (7) Certain non-standard mast arm poles and special structural elements will require additional review from IDOT's Central Office. Examples include ornamental or decorative, non-standard length mast arm pole assemblies and monotube structures.
- (8) The contract number or permit number, project location/limits, and corresponding pay code number must be on each sheet of correspondence, material approval, and mast arm poles and assemblies drawings.
- (9) Where certifications and/or warranties are specified, the information submitted for approval shall include certifications and warranties. Certifications involving inspections and/or tests of material shall be complete with all test data, dates, and times.
- (10) After the Engineer reviews the submittals for conformance with the design concept of the project, the Engineer will stamp the drawings indicating their status as 'Approved', 'Approved-As-Noted', 'Disapproved', or 'Incomplete'. Since the Engineer's review is for conformance with the design concept only, it is the Contractor's responsibility to coordinate the various items into a working system as specified. The Contractor shall not be relieved from responsibility for errors or omissions in the shop, working, layout drawings, or other documents by the Department's approval thereof. The Contractor must still be in full compliance with Contract and specification requirements.
- (11) The Contractor shall secure approved materials in a timely manner to assure construction schedules are not delayed.
- (12) All submitted items reviewed and marked 'APPROVED AS NOTED', 'DISAPPROVED', or 'INCOMPLETE' are to be resubmitted in their entirety, unless otherwise indicated within the submittal comments, with a disposition of previous comments to verify Contract compliance at no additional cost to the Contract.
- (13) Exceptions to and deviations from the requirements of the contract documents will not be allowed. It is the Contractor's responsibility to note any deviations from contract requirements at the time of submittal and to make any requests for deviations in writing to the Engineer. In general, substitutions will not be acceptable. Requests for substitutions must demonstrate that the proposed substitution is superior to the material or equipment required by the contract documents. No exceptions, deviations or substitutions will be permitted without the approval of the Engineer.
- (14) The Contractor shall not order major equipment such as mast arm assemblies prior to Engineer approval of the Contractor marked proposed traffic signal equipment locations to assure proper placement of Contract required traffic signal displays, push buttons and other facilities. Field adjustments may require changes in proposed mast arm length and other coordination.

- (15) Revised cabinet wiring diagrams shall be submitted whenever any wiring modifications are made to the traffic signal cabinet.”

Marking Proposed Locations. Revise “Marking Proposed Locations for Highway Lighting System” of Article 801.09 to read “Marking Proposed Locations for Highway Lighting System and Traffic Signals.”

Add the following to Article 801.09 of the Standard Specifications:

“It shall be the Contractor's responsibility to verify all dimensions and conditions existing in the field prior to ordering materials and beginning construction. This shall include locating the mast arm foundations and verifying the mast arms lengths.”

Inspection of Electrical Systems. Add the following to Article 801.10 of the Standard Specifications:

- (c) All cabinets, including temporary traffic signal cabinets, shall be assembled by an approved Vendor in District One. The Department reserves the right to request any controller and cabinet to be tested at the Vendor's facility prior to field installation at no extra cost to the Contract.

Maintenance and Responsibility of Traffic Signal and Flashing Beacon Installations. Replace Article 801.11(b) of the Standard Specifications to read:

- (b) Traffic Signals and Flashing Beacons. The Contractor shall be responsible for maintaining the traffic signal/flashing beacon installation in proper operating condition.

(1) General.

- a. The Contractor must notify the Area Traffic Signal Maintenance and Operations Engineer of their intent to begin any physical construction work on the contract or any portion thereof. This notification must be made a minimum of seven (working days prior to the start of construction to allow sufficient time for inspection of the existing traffic signal installation(s) and transfer of maintenance to the Contractor. The Department will attempt to fulfill the Contractor's inspection date request(s); however, workload and other conditions may prevent the Department from accommodating specific dates or times. The Contractor shall not be entitled to any other compensation if the requested inspection date(s) cannot be scheduled by the Department.
- b. Full maintenance responsibility shall start upon the successful completion of a maintenance transfer inspection, or as directed by the Engineer. If the Contractor begins any physical work on the Contract or any portion thereof prior to a traffic signal inspection, maintenance of the traffic signal installation(s) will be transferred to the Contractor without an inspection. The Contractor will become responsible for repairing or replacing all equipment that is not operating properly or is damaged at the time of transfer at no cost to the owner of the traffic signal equipment. Final repairs or replacement of damaged equipment must meet the approval of the Engineer prior to or at the time of final inspection, otherwise the traffic signal installation will not be accepted.

- c. All traffic signals within the limits of the Contract or those which have the item "Maintenance of Existing Traffic Signal Installation," "Temporary Traffic Signal Installation", "Temporary Bridge Traffic Signal Installation", "Temporary Portable Bridge Traffic Signal Installation", and/or "Maintenance of Existing Flashing Beacon Installation" shall become the full responsibility of the Contractor. Maintenance responsibility shall end upon issuance of final acceptance by the Engineer.
- d. The Contractor shall have electricians with IMSA/IPSI Traffic Signal Technician Level II certification on staff to provide signal maintenance. A copy of the certification shall be immediately available upon request by the Engineer.
- e. This item shall include maintenance of all traffic signal equipment and other connected and related equipment such as flashing beacons, EVP equipment, master controllers, network switches, UPS and batteries, PTZ cameras, vehicle detection, handholes, lighted signs, telephone service installations, cellular modems, radios, communication cables, and other traffic signal equipment. All conduit and related equipment to adjacent intersections shall be maintained to the far back handhole, or as directed by the Engineer. If adjacent intersections are part of contract work, then maintenance of all conduit and related equipment shall be included in this item.
- f. Regional transit, county, and other agencies may also have equipment connected to existing traffic signal or peripheral equipment such as network switches and transit signal priority (TSP, SCP, and BRT) servers, radios, and other devices, where maintenance shall be coordinated with the owner.
- g. Maintenance shall not include automatic traffic enforcement equipment such as red light enforcement cameras, detectors, or peripheral equipment. This equipment is operated and maintained by others and shall be deactivated while on Contractor maintenance.
- h. The energy charges for the operation of the traffic signal installation shall be paid for by the Contractor.

(2) Maintenance.

- a. The Contractor shall inspect all traffic signal equipment and appurtenances every two weeks to ensure they are functioning properly. Signal heads shall be properly adjusted, including plumb, and tightly mounted. All controller cabinets, signal posts, and controller pedestals shall be tight on their foundations and in alignment. Deficient equipment shall be repaired or replaced as necessary. The Contractor shall check signal system communications and phone lines to assure proper operation. This item includes, as routine maintenance, all portions of EVP equipment. The Contractor shall always maintain enough materials and equipment in stock to provide effective temporary and permanent repairs. The Contractor shall supply a detailed maintenance log monthly that includes dates, locations, names of electricians performing the required checks and inspections, and any other information requested by the Engineer. The Contractor shall attend any additional inspections as requested by the Engineer. The Contractor shall check the controllers, relays, and detectors after receiving

complaints or calls to ascertain that they are functioning properly and make all necessary repairs and replacement.

- b. The Contractor is advised that the existing and/or temporary traffic signal installation must remain in operation during all construction stages, except for the most essential down time. Any shutdown of the traffic signal installation which exceeds 15 minutes must have prior approval from the Engineer. Approval to shut down the traffic signal installation will only be granted during the period extending from 9:00 a.m. to 3:00 p.m. on weekdays. Shutdowns shall not be allowed during inclement weather or holiday periods.
- c. The Contractor shall provide immediate corrective action when any part(s) of the signal fail to function properly. Two far side heads facing each approach shall be considered the minimum acceptable signal operation pending permanent repairs. When repairs at a signalized intersection require that the controller be disconnected or otherwise removed from normal operation, and power is available, the Contractor shall place the traffic signal installation in flashing operation. The signals shall flash RED for all directions unless a different indication has been specified by the Engineer. The Contractor shall install cones on all lane lines at the stop bar on each approach, R1-1 (36 in. minimum) "STOP" signs at the stop bar on each approach on the right side and on raised medians (where applicable), and black on fluorescent orange "SIGNALS OUT AHEAD" warning signs followed by fluorescent orange W3-1 symbolic stop ahead warning signs on all approaches to the intersection.
- d. Temporary replacement of a damaged or knocked down mast arm pole assembly shall require construction of a full or partial span wire signal installation or other method approved by the Engineer to assure signal heads are located overhead and over traveled pavement. Temporary replacement of mast arm mount signals with post mount signals is not permitted.
- e. The Contractor shall provide the Engineer with two 24-hour telephone numbers for the maintenance of the traffic signal installation and for emergency calls by the Engineer.
- f. Traffic signal equipment which is lost, damaged, or not returned to the Department for any reason shall be replaced with new equipment meeting the requirements of the Standard Specifications and these special provisions.
- g. The Contractor shall be fully responsible for the safe and efficient operation of the traffic signals and other equipment noted herein. The Contractor shall respond to all emergency calls from the Department or others within one hour after notification and provide immediate corrective action. When equipment has been damaged or becomes faulty beyond repair, the Contractor shall replace it with new equipment meeting current District One traffic signal specifications. The cost of furnishing and installing the replaced equipment shall be borne by the Contractor at no additional cost to the Contract. The Contractor may institute action to recover damages

from a responsible third party. If at any time the Contractor fails to perform all work as specified herein to keep the traffic signal installation in proper operating condition, or if the Engineer cannot contact the Contractor's designated personnel, the Engineer shall have the Department's Electrical Maintenance Contractor perform the maintenance work. The Contractor shall be responsible for all of the Department's Electrical Maintenance Contractor's costs and liquidated damages of \$1,000 per day per occurrence. The Department's Electrical Maintenance Contractor shall bill the Contractor for the total cost of the work. The Contractor shall pay this bill within 30 days of the date of receipt of the invoice or the cost of such work will be deducted from the amount due the Contractor. The Contractor shall allow the Electrical Maintenance Contractor to inspect the traffic signal installation that has been transferred to the Contractor for maintenance. Final replacement of damaged equipment must meet the approval of the Engineer prior to or at the time of final inspection, otherwise the traffic signal installation will not be accepted. Cable splices outside the controller cabinet shall not be allowed. The Department may inspect any signaling device on the Department's highway system at any time without notification. The Contractor shall not install padlocks on traffic signal cabinets or otherwise restrict the Department's access to the cabinet or controller.

- h. Any proposed activity in the vicinity of a highway-rail grade crossing must adhere to the guidelines set forth in the current edition of the Manual on Uniform Traffic Control Devices (MUTCD) regarding work in temporary traffic control zones in the vicinity of highway-rail grade crossings which states that lane restrictions, flagging, or other operations shall not create conditions where vehicles can be queued across the railroad tracks. If the queuing of vehicles across the tracks cannot be avoided, a uniformed law enforcement officer or flagger shall be provided at the crossing to prevent vehicles from stopping on the tracks, even if automatic warning devices are in place.
- i. The Contractor shall be responsible to clear snow, ice, dirt, debris, vegetation, temporary fence, or other condition that obstructs visibility of any traffic signal display or access to traffic signal equipment.
- j. The Contractor shall maintain the traffic signal in normal operation during any loss of utility or battery backup power. Temporary power to the traffic signal must meet applicable NEC and OSHA guidelines and may include portable generators and/or replacement batteries. Temporary power shall not be paid for separately but shall be included in the Contract.

- (3) Basis of Payment. This work will be paid for at the contract unit price per each for MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION, TEMPORARY TRAFFIC SIGNAL INSTALLATION, TEMPORARY BRIDGE TRAFFIC SIGNAL INSTALLATION, or TEMPORARY PORTABLE BRIDGE TRAFFIC SIGNAL INSTALLATION. Each location will be paid for separately. Maintenance of a flashing beacon shall be paid for at the contract unit price for

MAINTENANCE OF EXISTING FLASHING BEACON INSTALLATION. Each flashing beacon will be paid for separately.

Damage to Traffic Signal System. Add the following to Article 801.12(b) of the Standard Specifications:

“Any traffic signal control equipment that is damaged and non-repairable or not operating properly from any cause shall be replaced with new equipment meeting current District One traffic signal specifications and provided by the Contractor at no additional cost to the Contract and/or owner of the traffic signal system, all as approved by the Engineer. Final replacement of damaged equipment must meet the approval of the Engineer prior to or at the time of final inspection. Repair or replace any equipment damaged within the time shown in the table below:

| ITEM | RESPONSE TIME | SERVICE RESTORATION | PERMANENT REPAIR (calendar days) |
|--|---------------|---------------------|----------------------------------|
| Cabinet | 1 hour | 24 hours | 21 days |
| Controllers and Peripheral Equipment | 1 hour | 4 hours | 21 days |
| System Detector Loop | 1 hour | N/A | 7 days |
| All Other Detectors | 1 hour | N/A | 21 days |
| Signal Head and Lenses | 1 hour | 4 hours | 7 days |
| Aviation Red Beacon | 1 hour | 4 hours | 7 days |
| Mast Arm Assembly and Pole | 1 hour | 4 hours | 7 days |
| Traffic Signal Post | 1 hour | 4 hours | 7 days |
| Cable and Conduit | 1 hour | 4 hours | 7 days |
| Interconnect and Telemetry | 1 hour | 4 hours | 7 days |
| Graffiti Removal | N/A | N/A | 7 days |
| Misalignment of Signal Heads | 1 hour | 4 hours | 4 hours |
| Closed Loop Monitoring System | 1 hour | 24 hours | 14 days |
| Post and Poles Plumb Vertically | N/A | N/A | 21 days |
| Controller, Post & Pole Foundations | N/A | N/A | 21 days |
| Complaints, Calls, Controller or System Alarms, Timing, Phasing, Programming | 1 hour | 4 hours | N/A |
| Patrol Truck Deficiencies | N/A | 24 hours | 24 hours |
| Signal Heads Visibility | 1 day | 2 days | 14 days |

Temporary replacement of a damaged or knocked down mast arm pole assembly shall require construction of a full or partial span wire signal installation or other method approved by the Engineer to assure signal heads are located overhead and over traveled pavement. Temporary replacement of mast arm mount signals with post mount signals will not be permitted.

Replacement of any equipment for any reason shall be reported to the Area Traffic Signal Maintenance and Operations Engineer in writing within 24 hours. Permanent and temporary replacement of the controller and/or cabinet shall require inspection and testing by the vendor.

Automatic traffic enforcement equipment, such as red light enforcement cameras, detectors, and peripheral equipment, that is damaged or not operating properly from any cause, shall be the responsibility of the municipality or the automatic traffic enforcement company per permit agreement.”

Traffic Signal Inspection (TURN-ON). Revise Article 801.15(b) of the Standard Specifications to read:

“Turn-on. It is the intent to have all electric work completed and equipment field tested by the Contractor and/or vendor prior to the Department’s “turn-on” field inspection. If in the event the Engineer determines work is not complete and the inspection will require more than two hours to complete, the inspection shall be canceled, and the Contractor will be required to reschedule at another date. The maintenance of the traffic signals will not be accepted until all punch list work is corrected and re-inspected.

When the Contractor requests a turn-on and inspection of the completed traffic signal installation(s), the request must be made to the Area Traffic Signal Maintenance and Operations Engineer a minimum of seven working days prior to the time of the requested inspection. The Department will attempt to fulfill the Contractor’s turn-on and inspection date request(s); however, workload and other conditions may prevent the Department from accommodating specific dates or times. The Contractor shall not be entitled to any other compensation if the requested turn-on and inspection date(s) cannot be scheduled by the Department. The Department will not grant a field inspection until written or electronic notification is provided from the Contractor that the equipment has been field tested and the intersection is operating according to Contract requirements. The Contractor must invite local fire department personnel to the turn-on when EVP is included in the project. When the Contract includes the item Re-Optimize Traffic Signal System, Optimize Traffic Signal System, and/or Temporary Traffic Signal Timing, the Contractor must notify the SCAT Consultant of the turn-on/detour implementation schedule, as well as stage changes and phase changes during construction.

The Contractor must have all traffic signal work completed and the electrical service installation connected by the utility company prior to requesting an inspection and turn-on of the traffic signal installation. The Contractor shall be responsible to provide a police officer to assist with traffic control at the time of testing.

The Contractor shall provide a representative from the vendor who is knowledgeable of the cabinet design and controller functions to attend the traffic signal inspection for both permanent and temporary traffic signal turn-ons.

Upon demonstration that the signals are operating and all work is completed in accordance with the Contract and to the satisfaction of the Engineer, the Engineer will then allow the signals to be placed in continuous operation. The signals shall continue to be maintained by the Contractor until final acceptance.

The Department requires the following final project documentation from the Contractor at traffic signal turn-ons in electronic format in addition to hard copies where noted. An electronic media device shall be submitted with separate folders corresponding to each numbered title below. The electronic media device shall be labeled with date, project location, company, and contract or permit number. Electronic record drawings and

material approvals shall be submitted prior to traffic signal turn-on for review by the Department as described in the record drawings section herein.

Final Project Documentation:

- (1) Record Drawings. Electronically produced signal plans of record with field revisions marked in red. Two hard copies of 11 in. x 17 in. record drawings shall also be provided.
- (2) Field Testing. Written notification from the Contractor and the Vendor of satisfactory field testing with corresponding material performance measurements, such as for detector loops and fiber optic systems (see Article 801.13).
- (3) Material Approvals. Material approval documentation.
- (4) Manuals. Operation and service manuals of the signal controller and associated control equipment.
- (5) Cabinet Wiring Diagram and Cable Logs. Five hard copies of 11 in. x 17 in. cabinet wiring diagrams shall be provided along with electronic PDF and DGN files of the cabinet wiring diagram. Five hard copies of the cable logs and electronic Excel files shall be provided with cable #, number of conductors and spares, connected device/signal head and intersection location.
- (6) Warranties and Guarantees. All manufacturer and Contractor warranties and guarantees required by Article 801.14.
- (7) GPS Coordinates. GPS coordinates of traffic signal equipment as described in the Record Drawings section herein.

Acceptance of the traffic signal equipment by the Department shall be based upon inspection results at the traffic signal "turn-on", completeness of the required documentation, and successful operation during a minimum 72 hour "burn-in" period following activation of traffic signal equipment. If approved, traffic signal acceptance shall be verbal at the final inspection followed by written correspondence from the Engineer. The Contractor shall be responsible for all traffic signal equipment and associated maintenance thereof until Departmental acceptance is granted.

All equipment and/or parts to keep the traffic signal installation operating shall be furnished by the Contractor. No spare traffic signal equipment is available from the Department.

All punch list work shall be completed within two weeks after the turn-on. The Contractor shall notify the Area Traffic Signal Maintenance and Operations Engineer to schedule an inspection of all punch list work. Failure to meet these time constraints shall result in liquidated damage charges of \$500 per month per incident.

All cost of work and materials required to comply with the requirements herein shall be included in the pay item bid prices, under which the subject materials and signal equipment are paid, and no additional compensation will be allowed. Materials and signal equipment not complying with the requirements herein shall be subject to removal and disposal at the Contractor's expense."

Record Drawings. The requirements listed for Electrical Installation shall apply for Traffic Signal Installations in Article 801.16. Revise the second and third paragraphs of Article 801.16 of the Standard Specifications to read:

“When the work is complete, and seven days before the request for a final inspection, electronic Contract drawings, stamped “RECORD DRAWINGS”, shall be submitted to the Engineer for review and approval and shall be stamped with the date and the signature of the Contractor’s supervising Engineer or electrician. The record drawings shall be submitted in PDF format. If the Contract consists of multiple intersections, each intersection shall be saved as an individual PDF file with TS# and location name in its file name.

In addition to the record drawings, copies of the final material approvals which have been Approved or Approved as Noted shall be submitted in PDF format. The PDF files shall clearly indicate the pay item either by filename or PDF Table of Contents referencing the respective pay item number for multi-item PDF files. Specific part or model numbers of items which have been selected shall be clearly visible.

The Contractor shall provide two 11 in. x 17 in. hard copies of electronically produced final record drawings to be kept inside each traffic signal cabinet within project limits.”

Add the following to Article 801.16 of the Standard Specifications:

“In addition to the specified record drawings, the Contactor shall record GPS coordinates of the following traffic signal components being installed, modified or being affected in other ways by the Contract:

- All Mast Arm Poles and Posts
- Traffic Signal Wood Poles
- Railroad Bungalow
- UPS
- Handholes
- Controller Cabinets
- Communication Cabinets
- Electric Service Disconnect locations
- CCTV/PTZ Camera installations

Datum to be used shall be North American 1983.

Data shall be provided in electronic format and shall be in .csv format. Latitude and Longitude shall be in decimal degrees with a minimum of six decimal places. Each coordinate shall have the following information:

- File shall be named: TSXXX_YY-MM-DD.csv (i.e. TS22157_24-01-01.csv)
- Each intersection shall have its own file
- Row 1 should have the location name (i.e. IL 31 @ Klausen)
- Row 2 is blank
- Row 3 is the headers for the columns
- Row 4 starts the data
- Column A (Date) – should be in the following format: MM/DD/YYYY
- Column B (Item) – as shown in the table below
- Column C (Description) – as shown in the table below
- Column D and E (GPS Data) – should be in decimal form

Examples:

| Date | Item | Description | Latitude | Longitude |
|------------|---------------------------------|---|-----------|------------|
| 01/01/2024 | MP (Mast Arm Pole) | NEQ, NB, Dual, Combination Pole | 41.580493 | -87.793378 |
| 01/01/2024 | HH (Handhole) | Heavy Duty, Fiber, Intersection, Double | 41.558532 | -87.792571 |
| 01/01/2024 | ES (Electrical Service) | Ground mount, Pole mount | 41.765532 | -87.543571 |
| 01/01/2024 | CC (Controller Cabinet) | | 41.602248 | -87.794053 |
| 01/01/2024 | PTZ (PTZ) | NEQ extension pole | 41.593434 | -87.769876 |
| 01/01/2024 | POST (Post) | | 41.651848 | -87.762053 |
| 01/01/2024 | MCC (Master Controller Cabinet) | | 41.584593 | -87.793378 |
| 01/01/2024 | COMC (Communication Cabinet) | | 41.584600 | -87.793432 |
| 01/01/2024 | BBS (Battery Backup System) | | 41.558532 | -87.792571 |

Data collection can be made as construction progresses or can be collected after all items are installed. If the data is unacceptable, the Contractor shall make corrections to the data collection equipment and/or process and resubmit the data for review and approval as specified.

Data shall have a minimum 1 ft accuracy after post processing.”

Restoration of Work Area. Add the following article to Section 801 of the Standard Specifications:

“801.17 Restoration of Work Area. Restoration of the traffic signal work area shall be included in the related pay items such as foundation, conduit, handhole, underground raceways, detector loop installation or replacement, etc. All roadway surfaces such as shoulders, medians, sidewalks, pavement, etc. shall be replaced in kind. All damage to mowed lawns shall be replaced with an approved sod, and all damage to unmowed fields shall be seeded. All brick pavers disturbed in the work area shall be restored to their original configuration as directed by the Engineer. All damaged brick pavers shall be replaced with a comparable material approved by the Engineer.

Exposed holes created from removal or relocation of traffic signal equipment shall be sealed using a zinc-plated fender washer with toggle bolt.

Restoration of the work area shall be included in the contract without any extra compensation allowed to the Contractor.

Removal, Disposal, and Salvage of Existing Traffic Signal Equipment. The removal, disposal, and/or salvage of existing traffic signal equipment shall become the property of the Contractor and disposed of by the Contractor outside the State’s right-of-way, unless otherwise noted. No additional compensation shall be provided to the Contractor for removal, disposal or salvage expense for the work in the Contract.”

Bagging Signal Heads. Light tan colored traffic and pedestrian signal reusable covers shall be used to cover dark/un-energized signal sections, visors, and retroreflective backplates. Covers

shall be made of outdoor fabric with urethane coating for repelling water, have elastic fully sewn around the cover ends for a tight fit over the visor, and have a minimum of two straps with buckles to secure the cover to the backplate. A center mesh strip allows viewing without removal for signal status testing purposes. Covers shall include a message indicating the signal is not in service. Pedestrian pushbuttons that are not in service shall be covered with a durable material such as described above or burlap that is secured in a weather-resistant manner. The entire housing, including the pedestrian sign, shall also be covered on the front side.

Turn-On of New Traffic Signal Installations. The following only applies to new traffic signals at previously unsignalized locations.

The signal responsibility shall begin at the start of signal construction and shall end upon issuance of final acceptance by the Engineer. New traffic signal heads and indications may not be installed more than two weeks (14 calendar days) prior to the scheduled turn-on of the traffic signal to avoid motorist confusion caused by the presence of new signal heads, even if properly covered. Unenergized signal indications shall be bagged until one hour prior to the scheduled turn-on per the Bagging Signal Heads section above.

New stop bars and crosswalks on approaches that did not previously have stop control shall NOT be installed until the day of the traffic signal turn-on.

A portable changeable message sign (PCMS) must be placed two weeks prior to the scheduled new traffic signal turn-on for all approaches to the intersection with the following messages:



where “MMM” and “##” are the 3-character month abbreviation and day of the scheduled turn-on, respectively.

On the day of the turn-on, change messages to read:



The PCMS must remain in place for two weeks following the day of the turn-on.

Conflicting stop signs shall be removed immediately at the time of the traffic signal turn-on.

Locating Underground Facilities. Revise Section 803 to the Standard Specifications to read:

“IDOT traffic signal facilities are not part of any of the one-call locating service such as J.U.L.I.E or Digger. If the contract requires the maintenance services of an electrical contractor, the Contractor shall be responsible at their own expense for locating all existing IDOT electrical facilities, including but not limited to interconnect conduit and handholes, prior to performing any work. A maintenance transfer is required prior to any locating

work. If this contract does not require the maintenance services of an electrical contractor, the Contractor may request one free locate for existing IDOT electrical facilities from the District One electrical maintenance contractor prior to the start of any work. Additional requests will be at the expense of the Contractor. The location of underground traffic facilities does not relieve the Contractor of their responsibility to repair any facilities damaged during construction at their expense.

The exact location of all utilities shall be field verified by the Contractor before the installation of any components of the traffic signal system. For locations of utilities, locally owned equipment, and leased enforcement camera system facilities, the local Counties or Municipalities may need to be contacted: in the City of Chicago contact Digger at (312) 744-7000, and for all other locations contact J.U.L.I.E. at 1-800-892-0123 or 811.

The Contractor shall take whatever precautions to protect the electric cable or electric conductors in conduit from damage during location and construction operations. If the wiring is damaged, the Contractor shall replace the entire length of cable or conductors in conduit, in a manner satisfactory to the Engineer. Splicing below grade will not be permitted.

In the event the repairs are not made by the Contractor, the Contractor shall reimburse the Department for such repairs within 60 days of receiving written notification of said damage. Otherwise, the cost of such repairs will be deducted from monies due or which will become due the Contractor under the terms of the Contract."

Grounding of Traffic Signal Systems. Revise Section 806 of the Standard Specifications to read:

"All traffic signal systems, equipment and appurtenances shall be properly grounded in strict conformance with the NEC. This work shall be in accordance with IDOT's District One Traffic Signal Design Details.

The grounding electrode system shall include a ground rod installed with each traffic signal controller concrete foundation and all mast arm and post concrete foundations. An additional ground rod will be required at locations where measured resistance exceeds 25 ohms. Ground rods are included in the applicable concrete foundation or service installation pay item and will not be paid for separately.

Testing shall be according to Article 801.13 (a) (4) and (5).

- (a) The grounded conductor (neutral conductor) shall be white color coded. This conductor shall be bonded to the equipment grounding conductor only at the electric service installation. All power cables shall include one neutral conductor of the same size.
- (b) The equipment grounding conductor shall be green color coded. The following is in addition to Article 801.04 of the Standard Specifications:
 - (1) Equipment grounding conductors shall be bonded to the grounded conductor (neutral conductor) only at the electric service installation. The equipment grounding conductor is paid for separately and shall be continuous. The earth shall not be used as the equipment grounding conductor.

- (2) Equipment grounding conductors shall be bonded, using a UL Listed grounding connector, to all traffic signal mast arm poles, traffic signal posts, pedestrian posts, pull boxes, handhole frames and covers, conduits, and other metallic enclosures throughout the traffic signal wiring system, except where noted herein. Bonding shall be made with a splice and pigtail connection, using a sized compression type copper sleeve, sealant tape, and heat-shrinkable cap. A UL listed electrical joint compound shall be applied to all conductors' terminations, connector threads and contact points. Conduit grounding bushings shall be installed at all conduit terminations, including spare or empty conduits and conduit protruding from handhole walls.
 - (3) All metallic and non-metallic raceways, including spare or empty raceways, shall have a continuous equipment grounding conductor, except raceways containing only detector loop lead-in circuits, circuits under 50 V and/or fiber optic cable will not be required to include an equipment grounding conductor.
 - (4) Individual conductor splices in handholes shall be soldered and sealed with heat shrink. When necessary to maintain effective equipment grounding, a full cable heat shrink shall be provided over individual conductor heat shrinks.
- (c) The grounding electrode conductor shall be similar to the equipment grounding conductor in color coding (green) and size. The grounding electrode conductor is used to connect the ground rod to the equipment grounding conductor and is bonded to ground rods via exothermic welding, UL listed pressure connectors, and UL listed clamps."

OPTIMIZE TRAFFIC SIGNAL SYSTEM

Effective: May 22, 2002

Revised: November 1, 2023

Description. This work shall consist of optimizing a traffic signal system.

Optimize traffic signal system applies when a new or existing traffic signal system is to be optimized and a formal SCAT Report is to be prepared. The purpose of this work is to improve system performance by optimizing traffic signal timings and developing both a TOD program and a TRP.

After the signal improvements are completed, the signal system shall be optimized as specified by an approved Consultant who has previous experience in optimizing traffic signal systems for District One of the Illinois Department of Transportation. The Contractor shall contact the Traffic Signal Engineer at (847) 705-4734 for a listing of approved consultants. Traffic signal system optimization work, including fine-tuning adjustments of the optimized system, shall follow the requirements stated in the most recent IDOT District 1 SCAT Guidelines, except as noted herein.

A listing of existing signal equipment, interconnect information, phasing data, timing patterns, and SCAT report may be obtained from the Department, if available and as appropriate. The Consultant shall confer with the Area Traffic Signal Maintenance and Operations Engineer prior to optimizing the system to determine if any extraordinary conditions exist that would affect traffic flows in the vicinity of the system, in which case, the Consultant may be instructed to wait until the conditions return to normal or to follow specific instructions regarding the optimization.

The following tasks are associated with optimize traffic signal system:

1. Appropriate signal timings and offsets shall be developed for each intersection and appropriate cycle lengths shall be developed for the signal system. Consultant shall be present at the turn-on(s), if applicable, to implement initial timing plans.
2. Traffic counts shall be taken at all intersections after the permanent traffic signals are approved for operation by the Area Traffic Signal Maintenance and Operations Engineer. Manual turning movement counts shall be conducted from 6:30 a.m. to 9:30 a.m., 11:00 a.m. to 1:00 p.m., and 3:30 p.m. to 6:30 p.m. on a typical weekday from midday Monday to midday Friday and on a Saturday or Sunday, as directed by the Engineer, to account for special traffic generators such as shopping centers, educational institutes and special event facilities. The turning movement counts shall identify cars, and single-unit and multi-unit heavy vehicles.
3. The intersections shall be re-addressed and all system detectors reassigned as necessary according to the current standard practice of District One. System detector quantities and locations shall be assessed for optimal performance. The Department shall be notified of any proposed changes during data collection.
4. A traffic responsive program shall be developed, which considers both volume and occupancy. A time of day program shall be developed for use as a back-up system.
5. Proposed signal timing plan for the new or modified intersection shall be forwarded to IDOT for review prior to implementation.
6. Consultant shall conduct on-site implementation of the timings and make fine-tuning adjustments to the timings in the field to alleviate observed adverse operating conditions and to enhance operations. The consultant shall respond to IDOT comments and public complaints for a minimum period of six months from date of timing plan implementation.
7. Speed and delay studies shall be conducted during each of the count periods along the system corridor in the field before and after implementation of the proposed timing plans for comparative evaluations.

The following deliverables shall be provided for optimize traffic signal system. Consultant shall provide to IDOT one USB flash drive for the optimized system containing the following:

1. Electronic copy of the SCAT Report in PDF format
2. Copies of the Synchro (or other appropriate, approved optimization software) files for the optimized system
3. Traffic counts for the optimized system

The flash drive shall be labeled with the IDOT system number and master location (if applicable), as well as the submittal date and the consultant logo.

The SCAT report shall include the following elements:

| |
|---|
| Cover Page in color showing a System Map |
| Figures <ol style="list-style-type: none"> 1. System overview map showing system number, system schematic map with numbered system detectors, oversaturated movements, master location (if applicable), system phone number (if applicable), cycle lengths, and date of completion. 2. General location map in color showing signal system location in the metropolitan area. 3. Detail system location map in color showing cross street names and local controller addresses. 4. Controller sequence showing controller phase sequence diagrams. |
| Table of Contents |
| Tab 1: Final Report <ol style="list-style-type: none"> 1. Project Overview 2. System and Location Description (Project specific) 3. Methodology 4. Data Collection 5. Data Analysis and Timing Plan Development 6. Implementation <ol style="list-style-type: none"> a. Traffic Responsive Programming (Table of TRP vs. TOD Operation) with AM, Midday, and PM cycle lengths 7. Evaluation <ol style="list-style-type: none"> a. Speed and Delay runs |
| Tab 2. Turning Movement Counts <ol style="list-style-type: none"> 1. Turning Movement Counts (Showing turning movement counts in the intersection diagram for each period, including truck percentage) |
| Tab 3. Synchro Analysis <ol style="list-style-type: none"> 1. AM: Time-Space diagram in color, followed by intersection Synchro report (timing report) summarizing the implemented timings. 2. Midday: same as AM 3. PM: same as AM 4. Special weekend or off-peak traffic generators (shopping centers, educational facilities, arenas, etc.): same as AM |
| Tab 4: Speed, Delay Studies <ol style="list-style-type: none"> 1. Summary of before and after runs results in two (2) tables showing travel time and delay time. 2. Plot of the before and after runs diagram for each direction and time period. |
| Tab 5: Environmental Report <ol style="list-style-type: none"> 1. Environmental impact report including gas consumption, NO₂, HCCO, improvements. |

Basis of Payment. The work shall be paid for at the contract unit per EACH for OPTIMIZE TRAFFIC SIGNAL SYSTEM, which price shall be payment in full for performing all work described herein for the entire traffic signal system. Following the completion of traffic counts, 25% of the bid price will be paid. Following the completion of the Synchro analysis, 25% of the bid price will be paid. Following the setup and fine tuning of the timings, the speed-delay study, and the TRP programming, 25% of the bid price will be paid. The remaining 25% will be paid when the USB flash drive containing the SCAT report has been submitted and the system is operating to the satisfaction of the Engineer.

SERVICE INSTALLATION (TRAFFIC SIGNALS)

Effective: May 22, 2002

Revised: March 1, 2024

Revise Section 805 of the Standard Specifications to read:

Description. This work shall consist of all materials and labor required to install, modify, or extend the electric service installation. All installations shall meet the requirements of the "District One Standard Traffic Signal Design Details".

General. The electric service installation shall be the electric service disconnecting means and it shall be identified as suitable for use as service equipment.

The electric utility contact information is noted on the plans and represents the current information at the time of contract preparation. The Contractor must request in writing for service and/or service modification within ten days of Contract award and must follow-up with the electric utility to assure all necessary documents and payment are received by the utility. The Contractor shall forward copies of all correspondence between the Contractor and utility company to the Engineer and Area Traffic Signal Maintenance and Operations Engineer. The service agreement and sketch shall be submitted for signature to the IDOT's Traffic Operations Programs Engineer.

Materials. The completed control panel shall be constructed in accordance with UL Std. 508A, Industrial Control Panel, and carry the UL label. Wire terminations shall be UL listed.

Enclosures.

- (1) Pole Mounted Cabinet. The cabinet shall be UL 50, NEMA type 4X, unfinished single door design, fabricated from minimum 0.080 in. thick type 5052 H-32 aluminum. Seams shall be continuous welded and ground smooth. Stainless steel screws and clamps shall secure the cover and assure a watertight seal. The cover shall be removable by pulling the continuous stainless steel hinge pin. The cabinet shall have an oil-resistant gasket and a lock kit shall be provided with an internal O-ring in the locking mechanism assuring a watertight and dust-tight seal. The cabinet shall be sized to adequately house all required components with extra space for arrangement and termination of wiring. A minimum size of 14 in. high, 9 in. wide and 8 in. in depth is required. The cabinet shall be channel mounted to a wooden utility pole using assemblies recommended by the vendor.
- (2) Ground Mounted Cabinet. The cabinet shall be UL 50, NEMA type 3R unfinished single door design with back panel. The cabinet shall be fabricated from type 5052 H-32 aluminum with the frame and door 0.125 in. thick, the top 0.250 in. thick and the bottom 0.500-inch thick. Seams shall be continuous welded and ground smooth. The door and door opening shall be double flanged. The door shall be approximately 80% of the front surface, with a full length tamperproof stainless steel .075 in. thick hinge bolted to the cabinet with stainless steel carriage bolts and nylock nuts. The locking mechanism shall be slam-latch type with a keyhole cover. The cabinet shall be sized to adequately house all required components with extra space for arrangement and termination of wiring. A minimum size of 40 in. high, 16 in. wide and 15 in. in depth is required. The cabinet shall

be mounted upon a type A concrete foundation as indicated on the plans. The foundation is paid for separately.

All enclosures shall include a green external power indicator LED light with circuitry as shown in the Electrical Service-Panel Diagram detail sheet. For pole mounted service enclosures, the power indicator light shall be mounted as shown in the detail. For ground mounted enclosures, the power indicator light shall be mounted on the side of the enclosure most visible from the major roadway.

Electric Utility Meter Housing and Riser. The electric meter housing and meter socket shall be supplied and installed by the Contractor. The Contractor is to coordinate the work to be performed and the materials required with the utility company to make the final connection at the power source. Electric utility required risers, weather/service head, and any other materials necessary for connection shall also be included in the pay item. Materials shall be in accordance with the electric utility's requirements. For ground-mounted service, the electric utility meter housing shall be mounted to the enclosure. The meter shall be supplied by the utility company.

Surge Protector. Overvoltage protection, with LED indicator, shall be provided for the 120 V load circuit by the means MOV and thermal fusing technology. The response time shall be < 5 ns and operate within a range of -40°C to +85°C. The surge protector shall be UL 1449 Listed.

Circuit Breakers. Circuit breakers shall be standard UL listed molded case, thermal-magnetic bolt-on type circuit breakers with trip free indicating handles. 120 V circuit breakers shall have an interrupting rating of not less than 65,000 rms symmetrical amperes. Unless otherwise indicated, the main disconnect circuit breaker for the traffic signal controller shall be rated 60 A, 120 V and the auxiliary circuit breakers shall be rated 10 A, 120 V.

Fuses and Fuseholders. Fuses shall be small-dimensional cylindrical fuses of the dual element time-delay type. The fuses shall be rated for 600 VAC and shall have a UL listed interrupting rating of not less than 10,000 rms symmetrical amperes at rated voltage.

Ground and Neutral Bus Bars. A single copper ground and neutral bus bar, mounted on the equipment panel shall be provided. Ground and neutral conductors shall be separated on the bus bar. Compression lugs, plus two spare lugs, shall be sized to accommodate the cables with the heads of the connector screws painted green for ground connections and white for neutral connections.

Utility Services Connection. The Contractor shall notify the utility company marketing representative a minimum of 30 working days prior to the anticipated date of hook-up. This 30-day advance notification will begin only after the utility company marketing representative has received service charge payments from the Contractor. Prior to contacting the utility company marketing representative for service connection, the service installation controller cabinet and cable must be installed for inspection by the utility company.

Ground Rod. Ground rods shall be copper-clad steel, a minimum of 10 ft in length, and 3/4 in. in diameter. Ground rod resistance measurements to ground shall be 25 ohms or less. If necessary additional rods shall be installed to meet resistance requirements at no additional cost to the Contract.

Installation. The Contractor shall confirm the orientation of the traffic service installation and its door side with the Engineer prior to installation. All conduit entrances into the service installation shall be sealed with a pliable waterproof material.

- a. Pole Mounted. Brackets designed for pole mounting shall be used. All mounting hardware shall be stainless steel. Mounting height shall be as noted on the plans or as directed by the Engineer.
- b. Ground Mounted. The service installation shall be mounted plumb and level on the foundation and fastened to the anchor bolts with hot-dipped galvanized or stainless steel nuts and washers. The space between the bottom of the enclosure and the top of the foundation shall be caulked at the base with silicone.

Basis of Payment. The service installation shall be paid for at the contract unit price per EACH for SERVICE INSTALLATION of the type specified which shall be payment in full for furnishing and installing the service installation complete. The concrete foundation, type A, which includes the ground rod, shall be paid for separately. Service installation, pole mounted shall include the 3/4 in. grounding conduit, ground rod, and pole mount assembly. Any charges by the utility companies shall be approved by the Engineer and paid for as an addition to the Contract according to Article 109.05 of the Standard Specifications.

COILABLE NON-METALIC CONDUIT

Effective: May 22, 2002

Revised: July 1, 2015

Description. This work shall consist of furnishing and installing empty coilable non-metallic conduit (CNC). The CNC installation shall be in accordance with Sections 810 and 811 of the Standard Specifications except for the following:

Add the following to Article 810.03 of the Standard Specifications:

CNC meeting the requirements of NEC Article 353 shall be used for detector loop raceways to the handholes.

Add the following to Article 811.03 of the Standard Specifications:

On temporary traffic signal installations with detector loops, CNC meeting the requirements of NEC Article 353 shall be used for detector loop raceways from the saw-cut to 10 feet up the wood pole, unless otherwise shown on the plans

Basis of Payment. All installations of CNC for loop detection shall be included in the contract and not paid for separately.

UNDERGROUND RACEWAYS

Effective: May 22, 2002

Revised: March 1, 2024

Revise Article 810.04 of the Standard Specifications to read:

“Installation. All underground conduits shall have a minimum depth of 30 in. below the finished grade and shall be installed to avoid existing and proposed utilities within the project limits.”

Add the following to Article 810.04 of the Standard Specifications:

“All metal conduit installed underground shall be Rigid Steel Conduit unless otherwise indicated on the plans.”

All raceways which extend outside of a structure or duct bank but are not terminated in a cabinet, junction box, pull box, handhole, post, pole, or pedestal shall extend a minimum of 1 ft or the length shown on the plans beyond the structure or duct bank. The end of this extension shall be capped and sealed with a cap designed for the conduit to be capped.

The ends of rigid metal conduit to be capped shall be threaded, the threads protected with full galvanizing, and capped with a threaded galvanized steel cap.

The ends of rigid nonmetallic conduit and coilable nonmetallic conduit shall be capped with a rigid PVC cap of not less than 1/8 in. thick. The cap shall be sealed to the conduit using a room-temperature-vulcanizing (RTV) sealant compatible with the material of both the cap and the conduit. A washer or similar metal ring shall be glued to the inside center of the cap with epoxy, and the pull cord shall be tied to this ring.”

ROD AND CLEAN EXISTING CONDUIT

Effective: January 1, 2015

Revised: July 1, 2015

Description. This work shall consist of inserting a duct rod or electrical fish rod or tape of sufficient length and rigidity into an electrical conduit opening in one electrical handhole, and pushing the said rod through the conduit to emerge at the next or subsequent handhole in the conduit system at the location(s) shown on the plans. The duct rod may be inserted and removed by any standard construction method which causes no damage to the conduit. The size of the conduit may vary, but there shall be no differentiation in cost for the size of the conduit.

The conduit which is to be rodded and cleaned may exist with various amounts of standing water in the handholes to drain the conduit and to afford compatible working conditions for the installation of the duct rods and/or cables. Pumping of handholes shall be included with the work of rodding and cleaning of the conduit.

Any handhole which, in the opinion of the Engineer contains excessive debris, dirt or other materials to the extent that conduit rodding and cleaning is not feasible, shall be cleaned at the Engineer's order and payment approval as a separate pay item.

Prior to removal of the duct rod, a duct cleaning attachment such as a properly sized wire brush or cleaning mandrel shall be attached to the duct rod, which by removal of the duct rod shall be

pulled through the conduit to remove sand, grit, or other light obstructions from the duct to provide a clean, clear passage for the installation of cable. Whenever the installation of cables is not performed as an adjunct to or immediately following the cleaning of the duct, a light weight pulling line such as a 1/8" polyethylene line or conduit measuring tape shall be placed and shall remain in the conduit to facilitate future work. When great difficulty of either inserting the duct rod or removal of the cleaning mandrel is encountered, the duct may require further cleaning by use of a compressed air gun, or a low pressure water hose. In the case of a broken conduit, the conduit must be excavated and repaired. The existence and location of breaks in the conduit may be determined by rodding, but the excavation and repair work required will be paid for separately.

This work shall be measured per lineal foot for each conduit cleaned. Measurements shall be made from point to point horizontally. No vertical rises shall count in the measurement.

Basis of Payment. This work shall be paid for at the contract unit price per FOOT for ROD AND CLEAN EXISTING CONDUIT for the installation of new electric cables in existing conduits. Such price shall include the furnishing of all necessary tools, equipment, and materials required to prepare a conduit for the installation of cable.

HANDHOLES

Effective: January 01, 2002

Revised: November 1, 2023

Description. Add the following to Section 814 of the Standard Specifications:

All conduits shall enter the handhole at a depth of 30 in. except for the conduits for detector loops when the handhole is less than 5 ft from the detector loop. All conduit ends should be sealed with a waterproof sealant to prevent the entrance of contaminants into the handhole.

Steel cable hooks shall be epoxy coated and must meet the specifications set forth in 1006.10. Hooks shall be a minimum of 5/8 in. diameter with 90-degree bend and extend into the handhole at least 6 in. Hooks shall be placed a minimum of 12 in. below the lid or lower if additional space is required.

Precast round handholes shall not be used unless called out on the plans.

The cover of the handhole frame shall be labeled "Traffic Signals" with legible raised letters. Only handholes serving IDOT traffic signal equipment shall have this label. Handhole covers for red light running cameras shall be labeled "RLRC".

Revise the third paragraph of Article 814.03 of the Standard Specifications to read:

"Handholes shall be constructed as shown on the plans and shall be cast-in-place or precast concrete units. Heavy duty handholes shall be either cast-in-place or precast concrete units."

Revise Article 814.03(c) of the Standard Specifications to read:

"Precast Concrete. Precast concrete handholes shall be fabricated according to Article 1042.17. Where a handhole is contiguous to a sidewalk, preformed joint filler of 1/2 in. (13 mm) thickness shall be placed between the handhole and the sidewalk."

Add the following to Section 814 of the Standard Specifications:

Cast-In-Place Handholes. All cast-in-place handholes shall be concrete with minimum inside dimensions of 21-1/2 in. Frames and lid openings shall match this dimension.

For grounding purposes, the handhole frame shall have provisions for a 7/16 in. diameter stainless steel bolt cast into the frame. The covers shall have a stainless steel threaded stint extended from the eye hook assembly for the purpose of attaching the grounding conductor to the handhole cover.

The minimum wall thickness for heavy duty hand holes shall be 1 ft.

Precast Round Handholes. All precast handholes shall be concrete with an inside diameter of 30 in. Frames and covers shall have a minimum opening of 26 in. and no larger than the inside diameter of the handhole.

For grounding purposes, the handhole frame shall have provisions for a 7/16 in. diameter stainless steel bolt cast into the frame. For the purpose of attaching the grounding conductor to the handhole cover, the covers shall either have a 7/16 in. diameter stainless steel bolt cast into the cover or a stainless steel threaded stint extended from an eye hook assembly. A hole may be drilled for the bolt if one cannot be cast into the frame or cover. The head of the bolt shall be flush or lower than the top surface of the cover.

The minimum wall thickness for precast heavy duty hand holes shall be 6 in.

Precast round handholes shall be only produced by an approved precast vendor.

FIBER OPTIC TRACER CABLE

Effective: May 22, 2002

Revised: November 1, 2023

The cable shall meet the requirements of Section 817 of the Standard Specifications, except for the following:

Add the following to Article 817.03 of the Standard Specifications:

"In order to trace the fiber optic cable after installation, the tracer cable shall be installed in the same conduit as the fiber optic cable in locations shown on the plans. The tracer cable shall be continuous, extended into the controller cabinet and terminated on a barrier type terminal strip mounted on the side wall of the controller cabinet. The barrier type terminal strip and tracer cable shall be clearly marked and identified. All tracer cable splices shall be kept to a minimum and shall incorporate maximum lengths of cable supplied by the manufacturer. The tracer cable will be allowed to be spliced at handholes only. The tracer cable splice shall use a Western Union Splice soldered with resin core flux and shall be soldered using a soldering iron. Blow torches or other devices which

oxidize copper cable shall not be allowed for soldering operations. All exposed surfaces of the solder shall be smooth. The splice shall be covered with a black shrink tube meeting UL 224 guidelines, Type V and rated 600V, minimum length 4 in. and with a minimum 1 in. coverage over the XLP insulation, underwater grade.”

Revise Article 817.05 of the Standard Specifications to read:

“Basis of Payment. The tracer cable shall be paid for separately as ELECTRIC CABLE IN CONDUIT, TRACER, NO. 14 1C per FOOT, which price shall include all associated labor and material for installation.”

TRAFFIC SIGNAL PAINTING

Effective: May 22, 2002

Revised: March 1, 2025

Description. This work shall include surface preparation, powder coated finish application and packaging of new galvanized steel traffic signal mast arm poles and posts assemblies. All work associated with applying the painted finish shall be performed at the vendor’s facility for the pole assembly or post or at a painting facility approved by the Engineer. Traffic signal mast arm shrouds and post bases shall also be painted the same color as the pole assemblies and posts, including pedestrian posts.

Surface Preparation. All weld flux and other contaminates shall be mechanically removed. The traffic mast arms and post assemblies shall be degreased, cleaned, and air dried to assure all moisture is removed.

Painted Finish. All galvanized exterior surfaces shall be coated with a urethane or triglycidyl isocyanurate (TGIC) polyester powder to a dry film thickness of 2.0 mils. Prior to application, the surface shall be mechanically etched by brush blasting (Ref. SSPC-SP7) and the zinc coated substrate preheated to 450 °F for a minimum one hour. The coating shall be electrostatically applied and cured by elevating the zinc-coated substrate temperature to a minimum of 400 °F.

The finish paint color shall be one of the vendor’s standard colors and shall be as selected by the local agency responsible for paint costs. The Contractor shall confirm, in writing, the color selection with the local responsible agency and provide a copy of the approval to the Engineer and a copy of the approval shall be included in the material catalog submittal.

Painting of traffic signal heads, pedestrian signal heads and controller cabinets is not included in this pay item.

Any damage to the finish after leaving the vendor’s facility shall be repaired to the satisfaction of the Engineer using a method recommended by the vendor and approved by the Engineer. If while at the vendor’s facility the finish is damaged, the finish shall be re-applied at no cost to the contract.

Warranty. The Contractor shall furnish in writing to the Engineer, the paint vendor’s standard warranty and certification that the paint system has been properly applied.

Packaging. Prior to shipping, the poles and posts shall be wrapped in ultraviolet-inhibiting plastic foam or rubberized foam.

Basis of Payment. This work shall be paid for at the contract unit price per EACH for PAINT NEW MAST ARM AND POLE, UNDER 40 FEET, PAINT NEW MAST ARM AND POLE, 40 FEET AND OVER, PAINT NEW COMBINATION MAST ARM AND POLE, UNDER 40 FEET, PAINT NEW COMBINATION MAST ARM AND POLE, 40 FEET AND OVER, PAINT NEW TRAFFIC SIGNAL POST or PAINT NEW PEDESTRIAN PUSH-BUTTON POST of the length specified, which shall be payment in full for painting and packaging the traffic signal mast arm poles and posts described above including all shrouds, bases and appurtenances.

FULL-ACTUATED CONTROLLER AND CABINET

Effective: January 1, 2002

Revised: March 1, 2024

Description.

This work shall consist of furnishing and installing a traffic actuated solid state digital controller in the controller cabinet of the type specified, meeting the requirements of Section 857 of the Standard Specifications, as modified herein, including malfunction management unit, load switches and flasher relays, and all necessary connections for proper operation.

If the intersection is part of an existing system and/or when specified in the plans, this work shall consist of furnishing and installing a(n) "Autoscope Cobalt" brand traffic actuated solid state controller.

Materials.

Add the following to Article 857.02 of the Standard Specifications:

"Controllers shall be Econolite Cobalt or Eagle/Yunex M60 unless specified otherwise on the plans or elsewhere on these specifications. Only controllers supplied by one of the District One approved vendors will be allowed. The controller shall be of the most recent approved model and software version supplied by the vendor at the time of the traffic signal TURN-ON unless specified otherwise on the plans or these specifications. A removable controller data key shall also be provided. Individual load switches shall be provided for each vehicle, pedestrian, and overlap phase. The controller shall prevent phases from being omitted during program changes and after all preemption events and shall inhibit simultaneous display of circular yellow and yellow arrow indications.

For integration into an Advanced Traffic Management System (ATMS) such as Centrac, Tactics, or TransSuite, the controller shall have the latest version of approved NTCIP software installed. For operation prior to integration into an ATMS, the controller shall maintain existing communications."

Revise Article 1074.03 (a) (5) paragraph "b." to read:

"Thermostatically Controlled Exhaust Fans. The cabinet shall be equipped with two (2) thermostatically controlled exhaust fans. Each fan shall have a minimum air delivery capacity of 100 cfm (2.8 cu m/min) and shall be mounted on self-lubricating ball bearings.

The thermostat control shall be adjustable between 91 and 113 °F (33 and 45 °C) and shall be set to turn the fan on at 95 °F (35 °C)."

Add the following to Article 1074.03 of the Standard Specifications:

(a) (6) Cabinets shall be designed for NEMA TS2 Type 1 operation. All cabinets shall be pre-wired for a minimum of eight (8) phases of vehicular, four (4) phases of pedestrian and four (4) phases of overlap operation.

Revise the second sentence in Article 1074.03 (b) (1) paragraph "a" to read:

"The malfunction management unit shall have a minimum of 16 fully programmable channels."

Add the following to Article 1074.03 of the Standard Specifications:

- (b) (5) Cabinets – Provide 1/8 in. (3.2 mm) thick unpainted aluminum alloy 5052-H32. The surface shall be smooth, free of marks and scratches. All external hardware shall be stainless steel.
- (b) (6) Controller Harness – Provide a TS2 Type 2 "A" wired harness in addition to the TS2 Type 1 harness.
- (b) (7) Surge Protection – Shall be a 120VAC Single phase Modular filter Plug-in type, supplied from an approved vendor.
- (b) (8) BIU – shall be secured by mechanical means.
- (b) (9) Transfer Relays – Solid state or mechanical flash relays are acceptable.
- (b) (10) Switch Guards – All switches shall be guarded.
- (b) (11) Heating – One (1) 200 watt, thermostatically-controlled, electric heater.
- (b) (12) Lighting – One (1) LED Panel shall be placed inside the cabinet top panel and one (1) LED Panel shall be placed on each side of the pull-out drawer/shelf assembly located beneath the controller support shelf. The LED Panels shall be controlled by a door switch. The LED Panels shall be provided from an approved vendor.
- (b) (13) The cabinet shall be equipped with a pull-out drawer/shelf assembly. A 1-1/2 in. (38mm) deep drawer shall be provided in the cabinet, mounted directly beneath the controller support shelf. The drawer shall have a hinged top cover and shall be capable of accommodating one (1) complete set of cabinet prints and manuals. This drawer shall support 50 lb (23 kg) in weight when fully extended. The drawer shall open and close smoothly. Drawer dimensions shall make maximum use of available depth offered by the controller shelf and be a minimum of 18 in. (610mm) wide.
- (b) (14) Plan & Wiring Diagrams – 12 in. x 15 in. (305mm x 406mm) moisture sealed container attached to door.
- (b) (15) Detector Racks – Fully wired and labeled for four (4) channels of emergency vehicle pre-emption and sixteen channels (16) of vehicular operation.
- (b) (16) Field Wiring Labels – All field wiring shall be labeled.
- (b) (17) Field Wiring Termination – Approved channel lugs required.
- (b) (18) Power Panel – Provide a nonconductive shield.
- (b) (19) Circuit Breaker – The circuit breaker shall be sized for the proposed load but shall not be rated less than 30 amps.

- (b) (20) Police Door – Provide wiring and termination for plug in manual phase advance switch.

Basis of Payment. This work will be paid for at the contract unit price per EACH for FULL-ACTUATED CONTROLLER AND TYPE IV CABINET; FULL-ACTUATED CONTROLLER AND TYPE IV STRETCHED CABINET; FULL-ACTUATED CONTROLLER AND TYPE V CABINET; FULL-ACTUATED CONTROLLER AND TYPE SUPER P CABINET; FULL-ACTUATED CONTROLLER AND TYPE SUPER P STRETCHED CABINET; FULL-ACTUATED CONTROLLER AND TYPE SUPER R CABINET; FULL-ACTUATED CONTROLLER AND TYPE IV CABINET, SPECIAL; FULL-ACTUATED CONTROLLER AND TYPE IV STRETCHED CABINET, SPECIAL; FULL-ACTUATED CONTROLLER AND TYPE V CABINET, SPECIAL; FULL-ACTUATED CONTROLLER AND TYPE SUPER P CABINET (SPECIAL); FULL-ACTUATED CONTROLLER AND TYPE SUPER P STRETCHED CABINET (SPECIAL); FULL-ACTUATED CONTROLLER AND TYPE SUPER R CABINET (SPECIAL).

UNINTERRUPTABLE POWER SUPPLY, SPECIAL

Effective: January 1, 2013

Revised: March 1, 2024

This work shall be in accordance with section 862 of the Standard Specification except as modified herein

Add the following to Article 862.01 of the Standard Specifications:

“The UPS shall have the power capacity to provide normal operation of a signalized intersection that utilizes all LED type signal head optics, for a minimum of 6 (six) hours.”

Add the following to Article 862.02 of the Standard Specifications:

“Materials shall be according to Article 1074.04 as modified in UNINTERRUPTABLE POWER SUPPLY, SPECIAL.”

Add the following to Article 862.03 of the Standard Specifications:

“The UPS shall additionally include, but not be limited to, a battery cabinet, where applicable. For Super P and Super R cabinets, the battery cabinet is integrated to the traffic signal cabinet and shall be included in the cost for the traffic signal cabinet of the size and type indicated on the plans.”

Revise Article 862.04 of the Standard Specifications to read:

Installation.

When a UPS is installed at an existing traffic signal cabinet, the UPS cabinet shall partially rest on the lip of the existing controller cabinet foundation and be secured to the existing controller cabinet by means of at least four (4) stainless steel bolts. The UPS cabinet shall be completely enclosed with the bottom and back constructed of the same material as the cabinet.

When a UPS is installed at a new signal cabinet and foundation, it shall be mounted as shown on the plans.

At locations where UPS is installed and an emergency vehicle priority system is in use, any existing incandescent confirmation beacons shall be replaced with LED lamps in accordance with the District One Emergency Vehicle Priority System specification at no additional cost to the contract. A concrete apron shall be provided and be in accordance with Articles 424 and 202 of the Standard Specifications. The concrete apron shall also, follow the District 1 Standard Traffic Signal Design Detail, Type D for Ground Mounted Controller Cabinet and UPS Battery Cabinet.

For a ground mounted UPS, the UPS shall be mounted on its own Type A concrete foundation which will be paid for separately. A concrete apron shall be provided with a dimension of 36 in. in front of the UPS cabinet, 5 in. deep, and a width sized appropriately to the width of the concrete foundation. The concrete apron shall follow Articles 424 and 202 of the Standard Specifications.

This item shall include any required modifications to an existing traffic signal controller as a result of the addition of the UPS including the addition of alarms.

Materials.

Revise Article 1074.04(a)(1) of the Standard Specifications to read:

“The UPS shall be line interactive or double conversion and provide voltage regulation and power conditioning when utilizing utility power. The UPS shall be sized appropriately for the intersection(s) normal traffic signal operating load. The UPS must be able to maintain the intersection’s normal operating load plus 20 percent of the intersection’s normal operating load. When installed at a railroad-interconnected intersection, the UPS must maintain the railroad preemption load, plus 20 percent of the railroad preemption-operating load. The total connected traffic signal load shall not exceed the published ratings for the UPS. The UPS shall provide a minimum of six (6) hours of normal operation run-time for signalized intersections with LED type signal head optics at 77 °F (25 °C) (minimum 1000 W active output capacity, with 86 percent minimum inverter efficiency).”

Revise the first paragraph of Article 1074.04(a)(3) of the Standard Specifications to read:

“The UPS shall have a minimum of four (4) sets of normally open (NO) and normally closed (NC) single-pole double-throw (SPDT) relay contact closures, available on a panel mounted terminal block or locking circular connectors, rated at a minimum 120 V/1 A, and labeled so as to identify each contact according to the plans.”

Revise Article 1074.04(a)(17) of the Standard Specifications to read:

“When the intersection is in battery backup mode, the UPS shall bypass all internal cabinet lights, ventilation fans, cabinet heaters, service receptacles, luminaires, any lighted street name signs, any automated enforcement equipment and any other devices directed by the Engineer.”

Revise Article 1074.04(b)(2) paragraph “b.” of the Standard Specifications to read:

"Batteries, inverter/charger and power transfer relay shall be housed in a separate NEMA Type 3R cabinet. The cabinet shall be Aluminum alloy, 5052-H32, 0.125-inch thick and have a natural mill finish."

Revise Article 1074.04(b)(2) paragraph "c." of the Standard Specifications to read:

"No more than three (3) batteries shall be mounted on individual shelves for a cabinet housing six batteries and no more than four (4) batteries per shelf for a cabinet housing eight batteries."

Revise Article 1074.04(b)(2) paragraph "e." of the Standard Specifications to read:

"The battery cabinet housing shall have the following nominal outside dimensions: a width of 25 in. (785 mm), a depth of 16 in. (440 mm), and a height of 41 to 48 in. (1.1 to 1.3 m). Clearance between shelves shall be a minimum of 10 in. (250 mm)."

Revise Article 1074.04(b)(2) paragraph "g." of the Standard Specifications to read:

"The door shall open to the entire cabinet, have a neoprene gasket, an Aluminum continuous piano hinge with stainless steel pin, and a three point locking system. The door shall be equipped with a two position doorstop, one a 90° and one at 120°. The cabinet shall be provided with a main door lock which shall operate with a traffic industry conventional No. 2 key. Provisions for padlocking the door shall be provided."

Add the following to Article 1074.04(b)(2) of the Standard Specifications:

j. The battery cabinet shall have provisions for an external generator connection.

Add the following to Article 1074.04(c) of the Standard Specifications:

- (8) The UPS shall include a tip or kill switch installed in the battery cabinet, which shall completely disconnect power from the UPS when the switch is manually activated.
- (9) The UPS shall include standard RS-232 and internal Ethernet interface.
- (10) The UPS shall incorporate a flanged electric generator inlet for charging the batteries and operating the UPS. The generator connector shall be male type, twist-lock, rated as 15A, 125VAC with a NEMA L5-15P configuration and weatherproof lift cover plate. Access to the generator inlet shall be from a secured weatherproof lift cover plate or behind a locked battery cabinet police panel.
- (11) The bypass switch shall include an internal power transfer relay that allows removal of the battery back-up unit, while the traffic signal is connected to utility power, without impacting normal traffic signal operation.

Revise Article 1074.04(d)(3) of the Standard Specifications to read:

"All batteries supplied in the UPS shall be either gel cell or AGM type, deep cycle, completely sealed, prismatic lead calcium based, silver alloy, valve regulated lead acid

(VRLA) requiring no maintenance. All batteries in a UPS installation shall be the same type; mixing of gel cell and AGM types within a UPS installation is not permitted.”

Revise Article 1074.04(d)(4) of the Standard Specifications to read:

“Batteries shall be certified by the manufacturer to operate over a temperature range of -13 to 160 °F (-25 to + 71 °C) for gel cell batteries and -40 to 140 °F (-40 to + 60 °C) for AGM type batteries.”

Add the following to Article 1074.04(d) of the Standard Specifications:

(9) The UPS shall consist of an even number of batteries that are capable of maintaining normal operation of the signalized intersection for a minimum of six (6) hours. Calculations shall be provided showing the number of batteries of the type supplied that are needed to satisfy this requirement. A minimum of four (4) batteries shall be provided.

(10) Battery Heater mats shall be provided, when gel cell type batteries are supplied.

Add the following to the Article 1074.04 of the Standard Specifications:

(e) Warranty. The warranty for an uninterruptable power supply (UPS) and batteries (full replacement) shall cover a minimum of five (5) years from date the equipment is placed in operation.

(f) Installation. Bypass switch shall completely disconnect the traffic signal cabinet from the utility provider.

(g) The UPS shall be set-up to run the traffic signal continuously, without going to a red flashing condition when switched to battery power unless otherwise directed by the Engineer. The Contractor shall confirm set-up with the Engineer. The continuous operation mode when switched to battery may require modification to unit connections and these modifications are included in the unit price for this item.

Revise Article 862.05 of the Standard Specifications to read:

Basis of Payment.

This work will be paid for at the contract unit price per EACH for UNINTERRUPTABLE POWER SUPPLY, SPECIAL, UNINTERRUPTABLE POWER SUPPLY, GROUND MOUNTED, or UNINTERRUPTABLE POWER SUPPLY AND CABINET, SPECIAL. Replacement of emergency vehicle priority system confirmation beacons and any required modifications to the traffic signal controller shall be included in the cost of the UNINTERRUPTABLE POWER SUPPLY, SPECIAL, UNINTERRUPTABLE POWER SUPPLY, GROUND MOUNTED, or UNINTERRUPTABLE POWER SUPPLY AND CABINET, SPECIAL item. The concrete apron and earth excavation required shall be included in the cost of the UNINTERRUPTABLE POWER SUPPLY, GROUND MOUNTED or UNINTERRUPTABLE POWER SUPPLY AND CABINET, SPECIAL item.

FIBER OPTIC CABLE, SINGLE MODE

Effective: March 15, 2013

Description. The Contractor shall furnish and install loose-tube, single-mode, fiber optic cable of the number of fibers specified as shown in the plans and as directed by the Engineer.

Other ancillary components, required to complete the fiber optic cable plant, including but not limited to, moisture and water sealants, cable caps, fan-out kits, etc., shall be included in the cost of fiber optic cable and will not be paid for separately.

Materials. The single-mode, fiber optic cable shall incorporate a loose, buffer-tube design. The cable shall be an accepted product of the United States Department of Agriculture Rural Utilities Service (RUS) 7 CFR 1755.900 and meet the requirements of ANSI/ICEA Standard for Fiber Optic Outside Plant Communications Cable, ANSI/ICEA S-87-640-1999 for a single sheathed, non-armored cable, and shall be new, unused and of current design and manufacture.

Fibers.

The cables shall use dispersion unshifted fibers. The optical and physical characteristics of the un-cabled fibers shall include:

The single-mode fiber shall meet EIA/TIA-492CAAA, "Detail Specification for Class IVa Dispersion-Unshifted Single-Mode Optical Fibers," and ITU recommendation G.652.D, "Characteristics of a single-mode optical fiber cable."

| Physical Construction | | | |
|--------------------------------|---------|-------------------|-------------------|
| Requirement | | Units | Value |
| Cladding Diameter | | (μm) | 125.0 ± 0.7 |
| Core-to-Cladding Concentricity | | (μm) | ≤ 0.5 |
| Cladding Non-Circularity | | | $\leq 0.7 \%$ |
| Mode Field Diameter | 1310 nm | (μm) | 9.2 ± 0.4 |
| | 1550 nm | | 10.4 ± 0.5 |
| Coating Diameter | | (μm) | 245 ± 5 |
| Colored Fiber Nominal Diameter | | (μm) | 253 - 259 |
| Fiber Curl radius of curvature | | (m) | $> 4.0 \text{ m}$ |

| Optical Characteristics | | | |
|---|--------------|----------------------------|---------------------------|
| Requirement | | Units | Value |
| Cabled Fiber Attenuation | 1310 nm | (dB/km) | ≤ 0.4 |
| | 1550 nm | | ≤ 0.3 |
| Point discontinuity | 1310 nm | (dB) | ≤ 0.1 |
| | 1550 nm | | ≤ 0.1 |
| Macrobend Attenuation | Turns | Mandrel OD | |
| | 1 | 32 ± 2 mm | < 0.05 at 1550 nm |
| | 100 | 50 ± 2 mm | < 0.05 at 1310 nm |
| | 100 | 50 ± 2 mm | < 0.10 at 1550 nm |
| | 100 | 60 ± 2 mm | < 0.05 at 1550 nm |
| | 100 | 60 ± 2 mm | < 0.05 at 1625 nm |
| Cable Cutoff Wavelength (λ_{ccf}) | | (nm) | < 1260 |
| Zero Dispersion Wavelength (λ_0) | | (nm) | 1302 ≤ λ_0 ≤ 1322 |
| Zero Dispersion Slope (S_0) | | (ps/(nm ² •km)) | ≤ 0.089 |
| Total Dispersion | 1550 nm | (ps/(nm•km)) | ≤ 3.5 |
| | 1285-1330 nm | | ≤ 17.5 |
| | 1625 nm | | ≤ 21.5 |
| Cabled Polarization Mode Dispersion | | (ps/km ⁻²) | ≤ 0.2 |
| IEEE 802.3 GbE - 1300 nm Laser Distance | | (m) | up to 5000 |
| Water Peak Attenuation: 1383 ± 3 nm | | (dB/km) | ≤ 0.4 |

Cable Construction.

The number of fibers in each cable shall be as specified on the plans.

Optical fibers shall be placed inside a loose buffer tube. The nominal outer diameter of the buffer tube shall be 3.0 mm. Each buffer tube shall contain up to 12 fibers. The fibers shall not adhere to the inside of the buffer tube.

Each fiber shall be distinguishable by means of color coding in accordance with TIA/EIA-598-B, "Optical Fiber Cable Color Coding." The fibers shall be colored with ultraviolet (UV) curable inks.

Buffer tubes containing fibers shall be color coded with distinct and recognizable colors in accordance with TIA/EIA-598-B, "Optical Fiber Cable Color Coding." Buffer tube colored stripes shall be inlaid in the tube by means of co-extrusion when required. The nominal stripe width shall be 1 mm.

For cables containing more than 12 buffer tubes, standard colors are used for tubes 1 through 12 and stripes are used to denote tubes 13 through 24. The color sequence applies to tubes containing fibers only, and shall begin with the first tube. If fillers are required, they shall be placed in the inner layer of the cable. The tube color sequence shall start from the inside layer and progress outward.

In buffer tubes containing multiple fibers, the colors shall be stable across the specified storage and operating temperature range and shall not be subject to fading or smearing onto each other. Colors shall not cause fibers to stick together.

The buffer tubes shall be resistant to external forces and shall meet the buffer tube cold bend and shrinkback requirements of 7 CFR 1755.900.

Fillers may be included in the cable core to lend symmetry to the cable cross-section where needed. Fillers shall be placed so that they do not interrupt the consecutive positioning of the buffer tubes. In dual layer cables, any fillers shall be placed in the inner layer. Fillers shall be nominally 2.5 mm or 3.0 mm in outer diameter.

The central member shall consist of a dielectric, glass reinforced plastic (GRP) rod (optional steel central member). The purpose of the central member is to provide tensile strength and prevent buckling. The central member shall be overcoated with a thermoplastic when required to achieve dimensional sizing to accommodate buffer tubes/fillers.

Each buffer tube shall contain a water-swellaable yarn for water-blocking protection. The water-swellaable yarn shall be non-nutritive to fungus, electrically non-conductive, and homogeneous. It shall also be free from dirt or foreign matter. This yarn will preclude the need for other water-blocking material; the buffer-tube shall be gel-free. The optical fibers shall not require cleaning before placement into a splice tray or fan-out kit.

Buffer tubes shall be stranded around the dielectric central member using the reverse oscillation, or "S-Z", stranding process.

Water swellaable yarn(s) shall be applied longitudinally along the central member during stranding.

Two polyester yarn binders shall be applied contrahelically with sufficient tension to secure each buffer tube layer to the dielectric central member without crushing the buffer tubes. The binders shall be non-hygroscopic, non-wicking, and dielectric with low shrinkage.

For single layer cables, a water swellaable tape shall be applied longitudinally around the outside of the stranded tubes/fillers. The water swellaable tape shall be non-nutritive to fungus, electrically non-conductive, and homogenous. It shall also be free from dirt and foreign matter.

For dual layer cables, a second (outer) layer of buffer tubes shall be stranded over the original core to form a two layer core. A water swellaable tape shall be applied longitudinally over both the inner and outer layer. The water swellaable tape shall be non-nutritive to fungus, electrically non-conductive, and homogenous. It shall also be free from dirt and foreign matter.

The cables shall contain one ripcord under the sheath for easy sheath removal.

Tensile strength shall be provided by the central member, and additional dielectric yarns as required.

The dielectric yarns shall be helically stranded evenly around the cable core.

The cables shall be sheathed with medium density polyethylene (MDPE). The minimum nominal jacket thickness shall be 1.4 mm. Jacketing material shall be applied directly over the tensile strength members (as required) and water swellaable tape. The polyethylene shall contain carbon black to provide ultraviolet light protection and shall not promote the growth of fungus.

The MDPE jacket material shall be as defined by ASTM D1248, Type II, Class C, Category 4 and Grades J4, E7 and E8.

The jacket or sheath shall be free of holes, splits, and blisters.

The cable jacket shall contain no metal elements and shall be of a consistent thickness.

Cable jackets shall be marked with the manufacturer's name, month and year of manufacture, sequential meter or foot markings, a telecommunication handset symbol as required by Section 350G of the National Electrical Safety Code (NESC), fiber count, and fiber type. The actual length of the cable shall be within -0/+1% of the length markings. The print color shall be white, with the exception that cable jackets containing one or more co-extruded white stripes, which shall be printed in light blue. The height of the marking shall be approximately 2.5 mm.

The maximum pulling tension shall be 2700 N (608 lbf) during installation (short term) and 890 N (200 lbf) long term installed.

The shipping, storage, and operating temperature range of the cable shall be -40°C to +70°C. The installation temperature range of the cable shall be -30°C to +70°C.

General Cable Performance Specifications.

The fiber optic cable manufacturer shall provide documentation and certify that the fiber optic cable complies with the following EIA-455-xxx Fiber Optic Test Procedures (FOTP):

When tested in accordance with FOTP-3, "*Procedure to Measure Temperature Cycling Effects on Optical Fibers, Optical Cable, and Other Passive Fiber Optic Components*," the change in attenuation at extreme operational temperatures (-40°C and +70°C) shall not exceed 0.15 dB/km at 1550 nm for single-mode fiber and 0.3 dB/km at 1300 nm for multimode fiber.

When tested in accordance with FOTP-82, "*Fluid Penetration Test for Fluid-Blocked Fiber Optic Cable*," a one meter length of unaged cable shall withstand a one meter static head or equivalent continuous pressure of water for one hour without leakage through the open cable end.

When tested in accordance with FOTP-81, "*Compound Flow (Drip) Test for Filled Fiber Optic Cable*," the cable shall exhibit no flow (drip or leak) of filling and/or flooding material at 70°C.

When tested in accordance with FOTP-41, "*Compressive Loading Resistance of Fiber Optic Cables*," the cable shall withstand a minimum compressive load of 220 N/cm (125 lbf/in) applied uniformly over the length of the sample. The 220 N/cm (125 lbf/in) load shall be applied at a rate of 2.5 mm (0.1 in) per minute. The load shall be maintained for a period of 1 minute. The load shall then be decreased to 110 N/cm (63 lbf/in). Alternatively, it is acceptable to remove the 220 N/cm (125 lbf/in) load entirely and apply the 110 N/cm (63 lbf/in) load within five minutes at a rate of 2.5 mm (0.1 in) per minute. The 110 N/cm (63 lbf/in) load shall be maintained for a period of 10 minutes. Attenuation measurements shall be performed before release of the 110 N/cm (63 lbf/in) load. The change in attenuation shall not exceed 0.15 dB at 1550 nm for single-mode fibers and 0.30 dB at 1300 nm for multimode fiber.

When tested in accordance with FOTP-104, "*Fiber Optic Cable Cyclic Flexing Test*," the cable shall withstand 25 mechanical flexing cycles around a sheave diameter not greater

than 20 times the cable diameter. The change in attenuation shall not exceed 0.15 dB at 1550 nm for single-mode fiber and 0.30 dB at 1300 nm for multimode fiber.

When tested in accordance with FOTP-25, "*Repeated Impact Testing of Fiber Optic Cables and Cable Assemblies*," except that the number of cycles shall be two at three locations along a one meter cable length and the impact energy shall be at least 4.4 Nm (in accordance with ICEA S-87-640)", the change in attenuation shall not exceed 0.15 dB at 1550 nm for single-mode fiber and 0.30 dB at 1300 nm for multimode fiber.

When tested in accordance with FOTP-33, "*Fiber Optic Cable Tensile Loading and Bending Test*," using a maximum mandrel and sheave diameter of 560 mm, the cable shall withstand a rated tensile load of 2670N (601 lbf) and residual load of 30% of the rated installation load. The axial fiber strain shall be $\leq 60\%$ of the fiber proof level after completion of 60-minute conditioning and while the cable is under the rated installation load. The axial fiber strain shall be $\leq 20\%$ of the fiber proof level after completion of 10-minute conditioning and while the cable is under the residual load. The change in attenuation at residual load and after load removal shall not exceed 0.15 dB at 1550 nm for single mode fiber and 0.30 dB at 1300 nm for multimode fiber.

When tested in accordance with FOTP-85, "*Fiber Optic Cable Twist Test*," a length of cable no greater than 2 meters shall withstand 10 cycles of mechanical twisting. The change in attenuation shall not exceed 0.15 dB at 1550 nm for single-mode fiber and 0.30 dB at 1300 nm for multimode fiber.

When tested in accordance with FOTP-37, "*Low or High Temperature Bend Test for Fiber Optic Cable*," the cable shall withstand four full turns around a mandrel of ≤ 20 times the cable diameter after conditioning for four hours at test temperatures of -30°C and $+60^{\circ}\text{C}$. Neither the inner or outer surfaces of the jacket shall exhibit visible cracks, splits, tears, or other openings. The change in attenuation shall not exceed 0.30 dB at 1550 nm for single mode fiber and 0.50 dB at 1300 nm for multimode fiber.

Quality Assurance Provision.

All cabled optical fibers > 1000 meters in length shall be 100% attenuation tested. The attenuation of each fiber shall be provided with each cable reel. The cable manufacturer shall be TL 9000 registered.

Packaging.

Top and bottom ends of the cable shall be available for testing. Both ends of the cable shall be sealed to prevent the ingress of moisture. Each reel shall have a weather resistant reel tag attached identifying the reel and cable. The reel tag shall include the following information:

- Cable Number
- Gross Weight
- Shipped Cable Length in Meters
- Job Order Number
- Product Number
- Customer Order Number

- Date Cable was Tested
- Manufacturer Order Number
- Cable Length Markings
 - a. Top (inside end of cable)
 - b. Bottom (outside end of cable)

The reel (one flange) marking shall include:

- Manufacturer
- Country of origin
- An arrow indicating proper direction of roll when handling
- Fork lift-handling illustration
- Handling Warnings

Each cable shall be accompanied by a cable data sheet. The cable data sheet shall include the following information:

- Manufacturer Cable Number
- Manufacturer Product Number
- Manufacturer Factory Order Number
- Customer Name
- Customer Cable Number
- Customer Purchase Order Number
- Mark for Information
- Ordered Length
- Maximum Billable Length
- Actual Shipped Length
- Measured Attenuation of Each Fiber

The cable shall be capable of withstanding a minimum-bending radius of 20 times its outer diameter during installation and 10 times its outer diameter during operation without changing the characteristics of the optical fibers.

The cable shall meet all of specified requirements under the following conditions:

- Shipping/storage temperature: -58°F to +158°F (-50°C to +70°C)
- Installation temperature: -22°F to +158°F (-30°C to +70°C)
- Operating temperature: -40°F to +158°F (-40°C to +70°C)
- Relative humidity from 0% to 95%, non-condensing

Optical Patch Cords and Pigtails.

The optical patch cords and pigtails shall comply with the following:

- The optical patch cords shall consist of a section of single fiber, jacketed cable equipped with optical connectors at both ends.
- The factory installed connector furnished as part of the optical patch cords and pigtails shall meet or exceed the requirements for approved connectors specified herein.

- The fiber portion of each patch cord and pigtail shall be a single, jacketed fiber with optical properties identical to the optical cable furnished under this contract.
- The twelve fiber single-mode fiber optic cable shall be installed as a pigtail with factory installed ST compatible connectors.
- The patch cords shall comply with Telcordia GR-326-CORE

Connectors.

The optical connectors shall comply with the following:

- All connectors shall be factory installed ST compatible connectors. Field installed connectors shall not be allowed.
- Maximum attenuation 0.4dB, typical 0.2dB.
- No more than 0.2dB increase in attenuation after 1000 insertions.
- Attenuation of all connectors will be checked and recorded at the time of installation with an insertion test minimum 5 times checked with an OTDR.
- All fibers shall be connectorized at each end.
- All fibers shall terminate at a fiber patch panel
- Unused fibers will be protected with a plastic cap to eliminate dust and moisture.
- Termination shall be facilitated by splicing factory OEM pigtails on the end of the bare fiber utilizing the fusion splicing method. Pigtails shall be one meter in length.

CONSTRUCTION REQUIREMENTS

Experience Requirements.

Personnel involved in the installation, splicing and testing of the fiber optic cables shall meet the following requirements:

- A minimum of three (3) years experience in the installation of fiber optic cables, including fusion splicing, terminating and testing single mode fibers.
- Install two systems where fiber optic cables are outdoors in conduit and where the systems have been in continuous satisfactory operation for at least two years. The Contractor shall submit as proof, photographs or other supporting documents, and the names, addresses and telephone numbers of the operating personnel who can be contacted regarding the installed fiber optic systems.
- One fiber optic cable system (which may be one of the two in the preceding paragraph), which the Contractor can arrange for demonstration to the Department representatives and the Engineer.

Installers shall be familiar with the cable manufacturer's recommended procedures for installing the cable. This shall include knowledge of splicing procedures for the fusion splicer being used on this project and knowledge of all hardware such as breakout (furcation) kits and splice closures. The Contractor shall submit documented procedures to the Engineer for approval and to be used by Construction inspectors.

Personnel involved in testing shall have been trained by the manufacturer of the fiber optic cable test equipment to be used, in fiber optic cable testing procedures. Proof of this training shall be submitted to the Engineer for approval. In addition, the Contractor shall submit documentation of the testing procedures and a copy of the test equipment operation manual for approval by the Engineer.

Installation in Raceways.

Prior to installation, the Contractor shall provide a cable-pulling plan. The plan shall include the following information:

- Identify where each cable will enter the underground system and the direction each pull.
- Identify locations where the cable is pulled out of a handhole, coiled in a figure eight, and pulled back into the hand hole.
- The plan shall address the physical protection of the cable during installation and during periods of downtime.
- Identify the location of slack storage locations
- Identify the locations of splices.
- Identify distances between fiber access points and crossings.

The cable-pulling plan shall be provided to the Engineer for approval a minimum of 15 working days prior to the start of installation. The Engineer's approval shall be for the operation on the freeway and does not include an endorsement of the proposed procedures. The Contractor is responsible for the technical adequacy of the proposed procedures.

During cable pulling operations, the Contractor shall ensure that the minimum bending of the cable is maintained during the unreeling and pulling operations. Unless specified otherwise by the fiber optic cable manufacturer, the outside bend radius of the cable during installation shall be no less than 20 times the outside diameter of the fiber optic cable. Entry guide chutes shall be used to guide the cable into the handhole conduit ports. Lubricating compound shall be used to minimize friction. Corner rollers (wheels), if used, shall not have radii less than the minimum installation-bending radius of the cable. A series array of smaller wheels can be used for accomplishing the bend if the cable manufacturers specifically approve the array.

If figure-eight techniques are used during cable installation, the cable shall be handled manually and stored on the ground. The cable shall be placed on tarps to prevent damage from gravel, rocks, or other abrasive surfaces. Tarps should also be used in muddy conditions to keep the cable clean. Enough area to accommodate the cable length to be stored and sufficient personnel to maintain the required minimum-bending diameter as well as avoid kinking or otherwise damaging the cable shall be provided. If the cable has been figure-eighted in preparation for a forward feed, the figure-eight must be flipped over to access the outside cable end. Provide sufficient personnel to avoid kinking the cable as the figure-eight is flipped over. When removing the cable from the figure-eight, use care to avoid kinking the cable and violating the minimum-bending diameter.

Power assisted or figure-eight eliminator equipment, which is used to eliminate manual figure-eight procedures, shall not be used unless specifically allowed by the cable manufacturer in writing.

The pulling tension shall be continuously measured and shall not be allowed to exceed the maximum tension specified by the manufacturer of the cable. A dynamometer or in-line tensiometer shall be used to monitor tension in the pull-line near the winch. This device must be visible to the winch operator or used to control the winch. The pulling system shall have an audible alarm that sounds whenever a pre-selected tension level is reached. Tension levels shall be recorded continuously and shall be given to the engineer as well as included in the record drawing package.

The use of a breakaway link (swivel) may be used to ensure that the maximum tension of the cable is not exceeded. Breakaway links react to tension at the pulling eye and shall not be used in lieu of tension measuring devices. All pulling equipment and hardware which will contact the cable during installation must maintain the cable's minimum bend radius. Equipment including sheaves, capstans, bending shoes, and quadrant blocks shall be designed for use with fiber optic cable.

The cable shall be pulled into the conduit as a single component, absorbing the pulling force in all tension elements. The central strength member and Aramid yarn shall be attached directly to the pulling eye during cable pulling. "Basket grip" type attachments, which only attach to the cable's outer jacket, shall not be permitted. A breakaway swivel, rated at 95% of the cable manufacturer's approved maximum tensile loading, shall be used on all pulls. When simultaneously pulling fiber optic cable with other cables, separate grooved rollers shall be used for each cable.

To minimize the exposure of the backbone cable and to facilitate the longer lengths of fiber optic cable, the Contractor shall use a "blown cable" (pneumatically assisted) technique to place the fiber optic cable. A Compressed air cooler shall be used when ambient air temperatures reaches 90°F or more.

Where cable is to be pulled through existing conduit which contains existing cables, optical or other, the existing cables shall be removed and reinstalled with the fiber optic cable as indicated on the plans. The removal of the cable(s) shall be paid for separately. Reinstallation of the existing cables, if indicated on the plans, along with the fiber optic cable shall be included in this item for payment.

Tracer Wire.

A tracer wire shall be installed with all fiber optic cable runs. One tracer wire shall be installed along with the fiber optic cable in each raceway. If a raceway has more than one fiber optic cable, only one tracer wire per raceway is required. If there are parallel raceways, a tracer wire is required in each raceway that contains a fiber optic cable. Tracer wire shall be installed in raceway segments which are metallic to provide a continuous tracer wire system.

The tracer wire shall be a direct burial rated, number 12 AWG (minimum) solid (.0808" diameter), steel core soft drawn high strength tracer wire. The wire shall have a minimum 380 pound average tensile break strength. The wire shall have a 30 mil high density yellow polyethylene (HDPE) jacket complying with ASTM-D-1248, and a 30 volt rating.

Connection devices used shall be as approved by the tracer wire manufacturer, except wire nuts of any type are not acceptable and shall not be used.

The cost of the tracer wire shall be included in the cost of the fiber optic cable and not paid for separately.

Aerial Fiber Optic Cable.

Aerial fiber optic cable assemblies shall be of a self-supporting figure-8 design. The fiber optic cable shall be as described herein and shall be waterblocked utilizing water-swellaable materials. The cable assembly shall be designed and manufactured to facilitate midspan access.

The submittal information must include a copy of the standard installation instructions for the proposed cable. Installed cable sag shall not exceed 1% of the span distance. The submittal information must also include catalog cuts for all hardware to be utilized in the installation.

Construction Documentation Requirements.

Installation Practices for Outdoor Fiber Optic Cable Systems

The Contractor shall examine the proposed cable plant design. At least one month prior to starting installation of the fiber optic cable plant, the Contractor shall prepare and submit to the Engineer for review and approval, ten (10) copies of the Contractor's "Installation Practices for Outdoor Fiber Optic Cable Systems" manual. This manual shall address the Contractor's proposed practices covering all aspects of the fiber optic cable plant. This submittal shall include all proposed procedures, list of installation equipment, and splicing and test equipment. Test and quality control procedures shall be detailed as well as procedures for corrective action.

Operation and Maintenance Documentation.

After the fiber optic cable plant has been installed, ten (10) complete sets of Operation and Maintenance Documentation shall be provided. The documentation shall, as a minimum, include the following:

- Complete and accurate as-built diagrams showing the entire fiber optic cable plant including locations of all splices.
- Final copies of all approved test procedures
- Complete performance data of the cable plant showing the losses at each splice location and each terminal connector.
- Complete parts list including names of vendors.

Testing Requirements.

The Contractor shall submit detailed test procedures for approval by the Engineer. All fibers (terminated and un-terminated) shall be tested bi-directionally at both 1310 nm and 1550 nm with both an Optical Time Domain Reflectometer (OTDR) and a power meter with an optical source. For testing, intermediate breakout fibers may be concatenated and tested end-to-end. Any discrepancies between the measured results and these specifications will be resolved to the satisfaction of the Engineer.

Fibers which are not to be terminated shall be tested with a temporary fusion spliced pigtail fiber. **Mechanical splice or bare fiber adapters are not acceptable.**

The Contractor shall provide the date, time and location of any tests required by this specification to the Engineer at least 5 working (7 calendar) days before performing the test. Included with the notification shall be a record drawing of the installed fiber optic cable system. The drawings shall indicate actual installed routing of the cable, the locations of splices, and locations of cable slack with slack quantities identified.

Upon completion of the cable installation, splicing, and termination, the Contractor shall test all fibers for continuity, events above 0.1 dB, and total attenuation of the cable. The test procedure shall be as follows:

A Certified Technician utilizing an Optical Time Domain Reflectometer (OTDR) and Optical Source/Power Meter shall conduct the installation test. The test equipment used shall have been calibrated within the last two years. Documentation shall be provided. The Technician is directed to conduct the test using the standard operating procedures defined by the manufacturer of the test equipment. All fibers installed shall be tested in both directions.

A fiber ring or fiber box shall be used to connect the OTDR to the fiber optic cable under test at both the launch and receive ends. The tests shall be conducted at 1310 and 1550 nm for all fibers.

All testing shall be witnessed by the IDOT Engineer and a copy of the test results (CD ROM or USB Drive) shall be submitted on the same day of the test. Hardcopies shall be submitted as described herein with copies on CD ROM.

At the completion of the test, the Contractor shall provide copies of the documentation of the test results to the Project Engineer. The test documentation shall be submitted as two bound copies and three CD ROM copies, and shall include the following:

Cable & Fiber Identification:

- Cable ID
- Cable Location - beginning and end point
- Fiber ID, including tube and fiber color
- Wavelength
- Pulse width (OTDR)
- Refractory index (OTDR)
- Operator Name
- Date & Time
- Setup Parameters
- Range (OTDR)
- Scale (OTDR)
- Setup Option chosen to pass OTDR "dead zone"
- Test Results shall include:
 - OTDR Test results
 - Total Fiber Trace
 - Splice Loss/Gain
 - Events > 0.10 dB
 - Measured Length (Cable Marking)

- Total Length (OTDR)
- Optical Source/Power Meter Total Attenuation (dB/km)

Sample Power Meter Tabulation:

| Power Meter Measurements (dB) | | | | | | | | | |
|-------------------------------|---|-----------|-------------------|---------|---------|---------|---------|-----------------------|---------|
| Location | | Fiber No. | Cable Length (km) | A to B | | B to A | | Bidirectional Average | |
| A | B | | | 1310 nm | 1550 nm | 1310 nm | 1550 nm | 1310 nm | 1550 nm |
| | | 1 | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | 2 | | | | | | | |
| | | | | | | | | | |
| Maximum Loss | | | | | | | | | |
| Minimum Loss | | | | | | | | | |

The OTDR test results file format must be Bellcore/Telcordia compliant according to GR-196-CORE Issue 2, OTDR Data Standard, GR 196, Revision 1.0, GR 196, Revision 1.1, GR 196, Revision 2.0 (SR-4731) in a ".SOR" file format. A copy of the test equipment manufacture's software to read the test files, OTDR and power, shall be provided to the Department. These results shall also be provided in tabular form, see sample below:

| Sample OTDR Summary | | | | |
|---------------------|------------|----------------|-----------------|--------------|
| Cable Designation: | TCF-IK-03 | OTDR Location: | Pump Sta. 67 | Date: 1/1/00 |
| Fiber Number | Event Type | Event Location | Event Loss (dB) | |
| | | | 1310 nm | 1550 nm |
| 1 | Splice | 23500 Ft. | .082 | .078 |
| 1 | Splice | 29000 Ft. | .075 | .063 |
| 2 | Splice | 29000 Ft. | .091 | .082 |
| 3 | Splice | 26000 Ft. | .072 | .061 |
| 3 | Bend | 27000 Ft. | .010 | .009 |

The following shall be the criteria for the acceptance of the cable:

The test results shall show that the dB/km loss does not exceed +3% of the factory test or 1% of the cable's published production loss. However, no event shall exceed 0.10 dB. If any event is detected above 0.10 dB, the Contractor shall replace or repair the fiber including that event point.

The total loss of the cable (dB), less events, shall not exceed the manufacturer's production specifications as follows: 0.5 dB/km at both 1310 and 1550 nm.

If the total loss exceeds these specifications, the Contractor shall replace or repair the cable run at the no additional cost to the state, both labor and materials. Elevated attenuation due to exceeding the pulling tension, or any other installation operation, during installation shall require the replacement of the cable run at no additional cost to the State, including labor and materials.

Splicing Requirements.

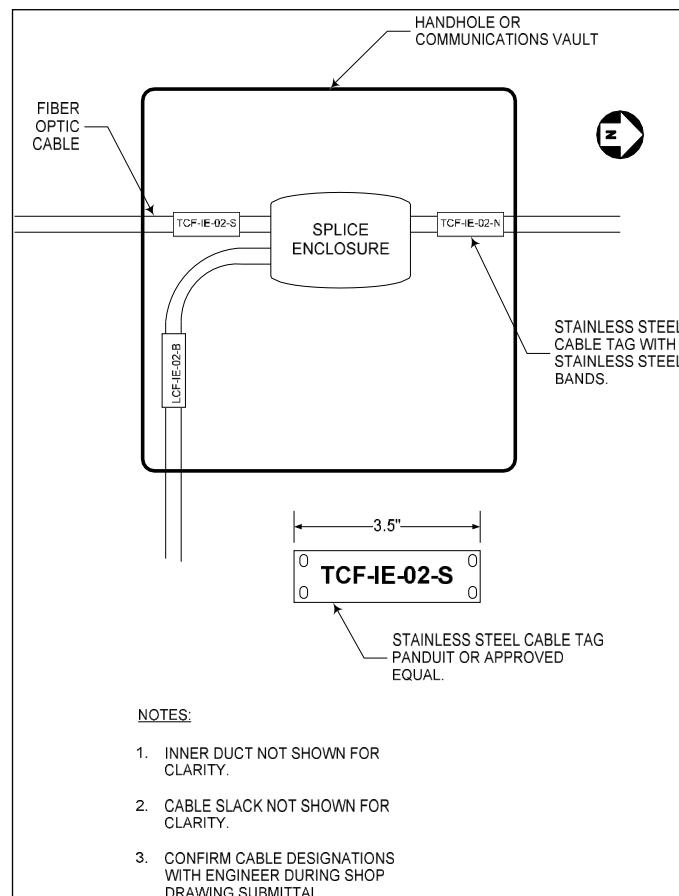
Splices shall be made at locations shown on the Plans. Any other splices shall be permitted only with the approval of the Engineer. Splices will be paid for separately. All splice locations must be

identified in the Record Drawings. **Cable runs which dead-end at a handhole, communications vault, interconnect cabinet, or any other type of enclosure, shall be dead ended in a splice enclosure.**

Slack Storage of Fiber Optic Cables.

Included as a part of this item, slack fiber shall be supplied as necessary to allow splicing the fiber optic cables in a controlled environment, such as a splicing van or tent. After splicing has been completed, the slack fiber shall be stored underground in handholes or in the raised base adapters of ground mounted cabinets in accordance with the fiber optic cable manufacturer's guidelines. Fiber optic cable slack shall be 100 feet for each cable at each splice location, above or below ground. Fiber optic cable slack shall be 50 feet for each cable at access points, above or below ground, where splicing is not involved. If the innerduct is cut, the ends of the innerduct should extend beyond the first vertical rack so they can be secured at that point. This slack shall be measured for payment.

Fiber optic cable shall be tagged inside handholes with yellow tape containing the text: "CAUTION - FIBER OPTIC CABLE." In addition, permanent tags, as approved by the engineer, shall be attached to all cable in a hand hole or other break-out environment. These tags shall be stainless steel, nominally 0.75" by 1.72", and permanently embossed. These tags shall be attached with stainless steel straps, and shall identify the cable number, the number of fibers, and the specific fiber count. Tags and straps shall be Panduit or approved equal. See figure below:



Label the destination of each trunk cable onto the cable in each handhole, vault or cable termination panel.

Method of Measurement. Fiber optic cable will be measured for payment in feet in place installed and tested. Fiber optic cable will be measured horizontally and vertically between the changes in direction, including slack cable. The entire lengths of cables installed in buildings will be measured for payment.

Basis of Payment. This work will be paid for at the contract unit price per FOOT for FIBER OPTIC CABLE of the type, size, and number of fibers specified. Payment shall not be made until the cable is installed, spliced and tested in compliance with these special provisions.

SPLICE FIBER IN CABINET

Effective: November 1, 2023

Description. This work shall consist of fusion splicing singlemode or multimode fibers in a field cabinet, inside a building, as shown on the plans and/or as directed by the Traffic Engineer.

This pay item shall include splices between existing fiber optic cables and any splices shown on the plans as a bid item. Splices shall be secured in fiber optic splice trays within fiber optic distribution enclosures. All fusion splices shall be secured on aluminum splice trays capable of accommodating the required number of fusion splices, including necessary splice holders and a compatible splice tray cover. The tray dimensions shall not exceed 7.5" x 4.1" x 0.45" and shall be mounted within the enclosure using suitable hardware that allows removal for maintenance purposes without the use of tools. All individual splice trays shall be labelled. Splice trays shall be included in the unit cost of Splice Fiber in Cabinet.

The quality of all fiber splices shall be verified by testing and documentation according to Article 801.13(d) of the "Standard Specifications," to the satisfaction of the Traffic Engineer.

All optical fibers shall be spliced to provide continuous runs. Splices shall only be allowed in equipment cabinets, in buildings, as shown on the plans and/or as directed by the Traffic Engineer.

All splices shall be made using a fusion splicer that automatically positions the fibers using a system of light injection and detection. The Contractor shall provide all equipment and consumable supplies.

An OTDR trace and power meter readings must be provided from end point termination to end point termination for any fiber that is spliced.

Basis of Payment.

This work shall be paid for at the contract unit price per EACH for SPLICE FIBER IN CABINET. The unit price shall include all equipment; materials; fiber optic splice trays; testing and documentation; and labor required to fusion splice singlemode fiber optic cable. Splices involving new fiber optic cable installed under this contract, and any splices shown on the plans as an

included item, shall be included in the unit cost of the applicable FIBER OPTIC CABLE of the type, size, and number of fibers specified.

TERMINATE FIBER IN CABINET

Effective: November 1, 2023

Description.

This work shall consist of terminating existing or new fibers in a field cabinet, inside a building, as shown on the plans and/or as directed by the Traffic Engineer.

General.

This pay item shall include splices between existing fiber optic cables and any splices shown on the plans as a bid item. All multimode connectors shall be LC compatible, with ceramic ferrules. Singlemode fiber terminations shall utilize pre-fabricated, factory-terminated (LC compatible with ceramic ferrules) pigtailed fusion spliced to bare fibers. The splicing of pigtailed for singlemode fibers is included in the cost of TERMINATE FIBER IN CABINET. The prefabricated pigtailed shall have all of their fibers color coded to match the singlemode fibers in the fiber optic cable. All fusion splices shall be secured on aluminum splice trays capable of accommodating the required number of fusion splices, including necessary splice holders and a compatible splice tray cover. The tray dimensions shall not exceed 7.5" x 4.1" x 0.45" and shall be mounted within the enclosure using suitable hardware that allows removal for maintenance purposes without the use of tools. All individual splice trays shall be labelled. Splice trays and connector bulkheads shall be included in the cost of TERMINATE FIBER IN CABINET. Connector bulkheads shall be the proper type for the fiber enclosure at the location, and shall be properly secured to the enclosure.

The quality of all fiber splices and terminations shall be verified by OTDR and power meter testing and documented according to Article 801.13(d) of the "Standard Specifications," to the satisfaction of the Traffic Engineer.

All bulkhead connectors / adapters shall be labeled with the fiber numbers and direction (i.e. 13-14N, 1-2W, etc.) with a laminated machine printed label.

Basis of Payment.

This work will be paid for at the contract unit price per EACH for TERMINATE FIBER IN CABINET, The unit price shall include all equipment; materials; connectors; pigtailed; splice trays; bulkheads; testing and documentation; and labor required to terminating each required multimode or singlemode fiber. Terminations involving new fiber optic cable installed under this contract, including any terminations shown on the plans as an included item, shall be included in the unit cost of the applicable FIBER OPTIC CABLE of the type, size, and number of fibers specified.

FIBER OPTIC INTERCONNECT CENTER, 24 PORT OR 48 PORT

Effective: November 1, 2023

Description. This work shall consist of removal of existing fiber optic interconnect center (FOIC) and replacement with a new FOIC wall mount in a traffic signal cabinet, as shown on the plans and/or as directed by the Traffic Engineer.

This pay item shall include providing and installing a Corning WIC-024 (24 Port) or CCH-04U (48 Port) or approved equivalent. The connector panels shall be populated with LC connectors.

The existing FOIC shall be removed and disposed of. The existing terminations shall remain intact if LC or replaced with LC if not, and any active connections shall be restored. New fiber jumpers shall be provided as part of this pay item if required.

All bulkhead connectors / adapters shall be labeled with the fiber numbers and direction (i.e. 13-14N, 1-2W, etc.) with a laminated machine printed label.

Basis of Payment. This work shall be paid for at the contract unit price per EACH for FIBER OPTIC INTERCONNECT CENTER, 24 PORT or FIBER OPTIC INTERCONNECT CENTER, 48 PORT. The unit price shall include all equipment; materials; fiber optic splice trays; testing and documentation; and labor required to fusion splice singlemode and multimode fiber optic cable.

ELECTRIC CABLE

Effective: May 22, 2002

Revised: July 1, 2015

Delete "or stranded, and No. 12 or" from the last sentence of Article 1076.04 (a) of the Standard Specifications.

Add the following to the Article 1076.04(d) of the Standard Specifications:

Service cable may be single or multiple conductor cable.

EMERGENCY VEHICLE PRIORITY SYSTEM LINE SENSOR CABLE, NO. 20 3/C

Effective: January 1, 2013

Revised: July 1, 2015

873.03TS

This work shall consist of furnishing and installing lead-in cable for light detectors installed at existing and/or proposed traffic signal installations as part of an emergency vehicle priority system. The work includes installation of the lead-in cables in existing and/or new conduit. The electric cable shall be shielded and have (3) stranded conductors, colored blue, orange, and yellow with a stranded tinned copper drain wire. The cable shall meet the requirements of the vendor of the Emergency Vehicle Priority System Equipment.

Basis of Payment.

This work will be paid for at the contract unit price per FOOT for EMERGENCY VEHICLE PRIORITY SYSTEM LINE SENSOR CABLE, NO. 20 3/C, which price shall be payment in full for furnishing, installing and making all electrical connections necessary for proper operations.

TRAFFIC SIGNAL POST

Effective: May 22, 2002

Revised: March 1, 2025

Revise Article 1077.01 (c) of the Standard Specifications to read:

- (c) Anchor Rods. The anchor rods shall be a minimum of 5/8 in. in diameter and 16 in. long and shall be according to Article 1006.09. The anchor rods shall be threaded approximately 6 in. at one end and have a bend at the other end. The first 12 in. at the threaded end shall be galvanized. One each galvanized nut and trapezoidal washer shall be furnished with each anchor rod. The washer shall be properly sized to fully engage and sit flush on all sides of the slot of the base plate.

Revise the first sentence of Article 1077.01 (d) of the Standard Specifications to read:

All steel posts and bases shall be hot dipped galvanized steel according to AASHTO M 111. If the Department approves painting, powder coating by the manufacturer will be required over the galvanization in accordance with 851.01TS TRAFFIC SIGNAL PAINTING Special Provisions.

PEDESTRIAN SIGNAL POST

Effective: January 1, 2020

Description.

This work shall consist of furnishing and installing a metal pedestrian signal post. All installations shall meet the requirements of the "District One Standard Traffic Signal Design Details".

Materials.

- a. General. The pedestrian signal post shall be designed to support the traffic signal loading shown on the plans. The design and fabrication shall be according to the Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, as published by AASHTO.
- b. Post. The post shall be made of steel or aluminum and have an outside diameter of 4 1/2 in. The post shall be threaded for assembly to the base. Aluminum posts shall be according to the specifications for Schedule 80 aluminum pipe. Steel posts shall be according to the specifications for Schedule 40 steel pipe.
- c. Base. The base of a steel post shall be cast iron. The base of an aluminum post shall be aluminum. The base shall be threaded for the attachment to the threaded post. The base shall be approximately 10 in. high and 6 3/4 in. square at the bottom. The bottom of the base shall be designed to accept four 5/8 in. diameter anchor rods evenly spaced in a 6 in. diameter circle. The base shall be true to pattern, with sharp clean cutting ornamentation, and equipped with access doors for cable handling. The door

shall be fastened to the base with stainless steel screws. A grounding lug shall be provided inside the base.

- d. Anchor Rods. The anchor rods shall be 5/8 in. in diameter and 16 in. long and shall be according to Article 1006.09. The anchor rods shall be threaded approximately 6 in. at one end and have a bend at the other end. The first 12 in. at the threaded end shall be galvanized. One each galvanized nut and trapezoidal washer shall be furnished with each anchor rod. The washer shall be properly sized to fully engage and sit flush on all sides of the slot of the base plate.

The aluminum post and base shall be drilled at the third points around the diameter and 1/4 in. by 2 in. stainless steel bolts shall be inserted to prevent the post from turning and wobbling.

- e. Finish. The steel post, steel post cap and the cast iron base shall be hot-dipped galvanized according to AASHTO M 111. If the Department approves painting, powder coating by the manufacturer will be required over the galvanization in accordance with 851.01TS TRAFFIC SIGNAL PAINTING Special Provisions. If the post and the base are threaded after the galvanization, the bare exposed metal shall be immediately cleaned to remove all cutting solvents and oils, and then spray painted with two coats of an approved galvanized paint.

The aluminum post shall have a natural finish, 100 grit or finer.

Installation.

The pedestrian signal post shall be erected plumb, securely bolted to a concrete foundation, and grounded to a ground rod according to the details shown on the plans. No more than 3/4 in. of the post threads shall protrude above the base.

A post cap shall be furnished and installed on the top of the post. The post cap shall match the material of the post. The Contractor shall apply an anti-seize paste compound on all nuts and bolts prior to assembly.

Prior to the assembly, the Contractor shall apply two additional coats of galvanized paint on the threads of the post and the base. The Contractor shall use a fabric post tightener to screw the post to the base.

Basis of Payment.

This work will be paid for at the contract unit price per EACH for PEDESTRIAN SIGNAL POST, of the length specified.

MAST ARM ASSEMBLY AND POLE

Effective: May 22, 2002

Revised: July 01, 2015

Revise the second sentence of Article 1077.03 (a)(3) of the Standard Specifications to read:

Traffic signal mast arms shall be one piece construction, unless otherwise approved by the Engineer.

Add the following to Article 1077.03 (a)(3) of the Standard Specifications:

If the Department approves painting, powder coating by the manufacturer will be required over the galvanization in accordance with 851.01TS TRAFFIC SIGNAL PAINTING Special Provisions.

CONCRETE FOUNDATIONS

Effective: May 22, 2002

Revised: March 1, 2024

Add the following to Article 878.03 of the Standard Specifications:

“All anchor bolts shall be according to Article 1006.09, with all anchor bolts hot dipped galvanized a minimum of 12 in. at the threaded end.

Depending on the foundation type, the top of foundation shall be between 1 in. and 6 in. above finished grade or as directed by the Engineer.

No foundation is to be poured until the Resident Engineer gives their approval as to the depth of the foundation.”

Add the following to the first paragraph of Article 878.05 of the Standard Specifications:

“The concrete apron in front of the cabinet and UPS shall be included in this pay item.”

Revise the first paragraph of Article 878.05 of the Standard Specifications to read:

“Basis of Payment. This work will be paid for at the Contract unit price per FOOT of depth of CONCRETE FOUNDATION of the type specified, or CONCRETE FOUNDATION, TYPE A 12-INCH DIAMETER for pedestrian post concrete foundations.”

**LIGHT EMITTING DIODE (LED) SIGNAL HEAD AND OPTICALLY PROGRAMMED LED
SIGNAL HEAD**

Effective: May 22, 2002

Revised: March 1, 2025

Materials.

Add the following to Section 1078 of the Standard Specifications:

“LED modules proposed for use and not previously approved by IDOT District One will require independent testing for compliance to current VTCSH-ITE standards for the product and be Intertek ETL Verified. This would include modules from new Vendors and new models from IDOT District One approved Vendors.

The proposed independent testing facility shall be approved by IDOT District One. Independent testing must include a minimum of two (2) randomly selected modules of each type of module (i.e. ball, arrow, pedestrian, etc.) used in the District and include as a minimum Luminous Intensity and Chromaticity tests. However, complete module performance verification testing may be required by the Engineer to assure the accuracy of the Vendor's published data and previous test results. An IDOT representative will select sample modules from the local warehouse and mark the modules for testing. Independent test results shall meet current ITE standards and vendor's published data. Any module failures shall require retesting of the module type. All costs associated with the selection of sample modules, testing, reporting, and retesting, if applicable, shall be the responsibility of the LED module Vendor and not be a cost to this Contract.

All signal heads shall provide 12 in. (300 mm) displays with glossy yellow or black polycarbonate housings. All head housings shall be the same color (yellow or black) at the intersection. For new signalized intersections and existing signalized intersections where all signals heads are being replaced, the proposed head housings shall be black. Where only selected heads are being replaced, the proposed head housing color (yellow or black) shall match existing head housings. Connecting hardware and mounting brackets shall be polycarbonate (black). A corrosion resistant anti-seize lubricant shall be applied to all metallic mounting bracket joints and shall be visible to the inspector at the signal turn-on. Post top mounting collars are required on all posts and shall be constructed of the same material as the brackets.

The LED signal modules shall be replaced or repaired if an LED signal module fails to function as intended due to workmanship or material defects. LED signal modules which exhibit luminous intensities less than the minimum values specified in Table 1 of the ITE Vehicle Traffic Control Signal Heads: Light Emitting Diode (LED) Circular Signal Supplement (June 27, 2005) [VTCSH], or applicable successor ITE specifications, or show signs of entrance of moisture or contaminants, shall be replaced or repaired. The Vendor's written warranty for the LED signal modules shall be dated, signed by a Vendor's representative, and included in the product submittal to the State. See Article 801.14 of the Standard Specifications for warranty information.

(a) Physical and Mechanical Requirements

(1) Modules can be manufactured under this specification for the following faces:

- a. 12 in. (300 mm) circular, multi-section

b. 12 in. (300 mm) arrow, multi-section

- (2) The maximum weight of a module shall be 4 lb (1.8 kg).
- (3) Each module shall be a sealed unit to include all parts necessary for operation (a printed circuit board, power supply, a lens and gasket, etc.) and shall be weatherproof after installation and connection.
- (4) The lens of the module shall be tinted with a wavelength-matched color to reduce sun phantom effect and enhance on/off contrast. The tinting shall be uniform across the lens face. Polymeric lens shall provide a surface coating or chemical surface treatment applied to provide abrasion resistance. The lens of the module shall be integral to the unit, convex with a smooth outer surface and made of plastic. The lens shall have a textured surface to reduce glare.
- (5) The use of tinting or other materials to enhance ON/OFF contrasts shall not affect chromaticity and shall be uniform across the face of the lens.
- (6) Each module shall have a symbol of the type of module (i.e. circle, arrow, etc.) in the color of the module. The symbol shall be 1 in. (25.4 mm) in diameter. Additionally, the color shall be written out in 1/2 in. (12.7mm) letters next to the symbol.

(b) Photometric Requirements

- (1) The LEDs utilized in the modules shall be AlInGaP technology for red and InGaN for green and amber indications and shall be the ultra bright type rated for 100,000 hours of continuous operation from -40 °C to 74 °C.

(c) Electrical

- (1) Maximum power consumption for LED modules as per the tables in Article 1078.01.
- (2) Operating voltage of the modules shall be 120 VAC. All parameters shall be measured at this voltage.
- (3) The modules shall be operationally compatible with currently used controller assemblies (solid state load switches, flashers, and conflict monitors).
- (4) When a current of 20 mA AC or less is applied to the unit, the voltage read across the two leads shall be 15 VAC or less.
- (5) The LED modules shall provide constant light output under power. Modules with dimming capabilities shall have the option disabled or set on a non-dimming operation.
- (6) LED arrows shall be wired such that a loss or the failure of one or more LEDs LEDs will not result in the loss of the entire module.

(d) Retrofit Traffic Signal Module

The following specification requirements apply to the Retrofit module only. All general specifications apply unless specifically superseded in this section.

- (1) Retrofit modules can be manufactured under this specification for the following faces:
 - a. 12 in. (300 mm) circular, multi-section
 - b. 12 in. (300 mm) arrow, multi-section
 - (2) Each Retrofit module shall be designed to be installed in the doorframe of a standard traffic signal housing. The Retrofit module shall be sealed in the doorframe with a one-piece EPDM (ethylene propylene rubber) gasket.
 - (3) The maximum weight of a Retrofit module shall be 4 lb (1.8 kg).
 - (4) Each Retrofit module shall be a sealed unit to include all parts necessary for operation (a printed circuit board, power supply, a lens and gasket, etc.) and shall be weatherproof after installation and connection.
 - (5) Electrical conductors for modules, including Retrofit modules, shall be 39-2/5 in. (1 m) in length, with quick disconnect terminals attached.
 - (6) The lens of the Retrofit module shall be integral to the unit, shall be convex with a smooth outer surface and made of plastic or of glass.
- (e) The following specification requirements apply to the 12 in. (300 mm) arrow module only. All general specifications apply unless specifically superseded in this section.
- (1) The arrow module shall meet specifications stated in Section 9.01 of the Equipment and Material Standards of the Institute of Transportation Engineers (November 1998) [ITE Standards], Chapter 2 (Vehicle Traffic Control Signal Heads) or applicable successor ITE specifications for arrow indications.
 - (2) The LEDs arrow indication shall be a solid display with a minimum of three (3) outlining rows of LEDs and at least one (1) fill row of LEDs.
- (f) The following specification requirement applies to the 12 in. (300 mm) programmed visibility (PV) module only. All general specifications apply unless specifically superseded in this section.
- (1) The LED module shall be a module designed and constructed to be installed in a programmed visibility (PV) signal housing without modification to the housing.

Delete the fourth paragraph of Article 880.03 of the Standard Specifications. Refer to the "Bagging Signal Heads" section of the District 1 Traffic Signal Special Provision 800.01TS TRAFFIC SIGNAL GENERAL REQUIREMENTS."

Basis of Payment.

Add the following to the first paragraph of Article 880.04 of the Standard Specifications:

“The price shall include furnishing the equipment described above, all mounting hardware and installing them in satisfactory operating condition.”

Revise the second paragraph of Article 880.04 of the Standard Specifications to read:

“If the work consists of retrofitting an existing polycarbonate traffic signal head with light emitting diodes (LEDs), it will be paid for as a SIGNAL HEAD, LED, RETROFIT, of the type specified, and of the particular kind of material, when specified. Price shall be payment in full for removal of the existing module, furnishing the equipment described above including LED modules, all mounting hardware, and installing them in satisfactory operating condition. The type specified will indicate the number of signal faces, the number of signal sections in each signal face and the method of mounting.”

LED SIGNAL FACE, LENS COVER

Effective: July 1, 2021

Revised: March 1, 2025

Description.

This work shall consist of furnishing and installing a signal lens cover with the purpose or preventing snow buildup on and around a signal lens allowing for clear indication during inclement weather.

This item shall fit over a 12 in. signal head lens and shall include the clear lens cover, attachment collar, and any clips or fasteners necessary to fit it flush. The cover must be installed in accordance with the Manufacturer's instructions and in a manner that prevents dust, debris, or moisture buildup on the inside of the lens cover that could affect the signal indication visibility. All mounting hardware including screws used for lens cover installation must be stainless steel. Lens covers shall be installed on all red signal head indications.

The snow resistant signal head lens cover shall be warrantied for a period of three (3) years from final inspection and must be free from material and workmanship defects.

Basis of Payment.

This work shall be paid for at the Contract unit price EACH for LED SIGNAL FACE, LENS COVER, the price of which shall include the cost for all work and material described herein and includes furnishing, installing, and all mounting hardware necessary for a fully operational snow resistant signal head lens cover.

LIGHT EMITTING DIODE (LED) PEDESTRIAN SIGNAL HEAD

Effective: May 22, 2002

Revised: March 1, 2024

Add the following to the third paragraph of Article 881.03 of the Standard Specifications:

“No mixing of different types of pedestrian traffic signals or displays shall be permitted.”

Delete the fourth paragraph of Article 881.03 of the Standard Specifications. Refer to the “Bagging Signal Heads” section of the District 1 Traffic Signal Special Provision 800.01TS TRAFFIC SIGNAL GENERAL REQUIREMENTS.

Add the following to Article 881.03 of the Standard Specifications:

“Pedestrian Countdown Signal Heads shall be 16 in. (406mm) x 18 in. (457mm) single units with glossy yellow or black polycarbonate housings. All pedestrian head housings shall be the same color (yellow or black) at the intersection. For new signalized intersections and existing signalized intersections where all pedestrian heads are being replaced, the proposed head housings shall be black. Where only selected heads are being replaced, the proposed head housing color (yellow or black) shall match existing head housings. Connecting hardware and mounting brackets shall be polycarbonate (black). A corrosion resistant anti-seize lubricant shall be applied to all metallic mounting bracket joints, and shall be visible to the inspector at the signal turn-on.

Each pedestrian signal LED module shall be fully MUTCD compliant and shall consist of double overlay message combining full LED symbols of an Upraised Hand and a Walking Person. “Egg Crate” type sun shields are not permitted. Numerals shall measure 9 in. (229mm) in height and easily identified from a distance of 120 ft (36.6m).”

Materials.

Add the following to Article 1078.02 of the Standard Specifications:

“The module shall operate in one mode: Clearance Cycle Countdown Mode Only. The countdown module shall display actual controller programmed clearance cycle and shall start counting when the flashing clearance signal turns on and shall countdown to “0” and turn off when the steady Upraised Hand (symbolizing Don’t Walk) signal turns on. The module shall not have user accessible switches or controls for modification of cycle.

At power on, the module shall enter a single automatic learning cycle. During the automatic learning cycle, the countdown display shall remain dark.

The module shall re-program itself if it detects any increase or decrease of Pedestrian Timing. The counting unit will go blank once a change is detected and then take one complete pedestrian cycle (with no counter during this cycle) to adjust its buffer timer.

If the controller preempts during the Walking Person (symbolizing Walk), the countdown will follow the controller's directions and will adjust from Walking Person to flashing Upraised Hand. It will start to count down during the flashing Upraised Hand.

If the controller preempts during the flashing Upraised Hand, the countdown will continue to count down without interruption.

The next cycle following the preemption event shall use the correct, initially programmed values.

If the controller output displays Upraised Hand steady condition and the unit has not arrived to zero or if both the Upraised Hand and Walking Person are dark for some reason, the unit suspends any timing and the digits will go dark.

The digits will go dark for one pedestrian cycle after loss of power of more than 1.5 seconds.

The countdown numerals shall be two (2) "7 segment" digits forming the time display utilizing two rows of LEDs.

The LED module shall meet the requirements of the Institute of Transportation Engineers (ITE) LED purchase specification, "Pedestrian Traffic Control Signal Indications - Part 2: LED Pedestrian Traffic Signal Modules," or applicable successor ITE specifications, except as modified herein.

The LED modules shall provide constant light output under power. Modules with dimming capabilities shall have the option disabled or set on a non-dimming operation.

In the event of a power outage, light output from the LED modules shall cease instantaneously.

The LEDs utilized in the modules shall be AlInGaP technology for Portland Orange (Countdown Numerals and Upraised Hand) and GaN technology for Lunar White (Walking Person) indications.

The individual LEDs shall be wired such that a loss or the failure of one or more LED will not result in the loss of the entire module.

See Article 801.14 of the Standard Specifications for warranty information."

Basis of Payment.

Add the following to the first paragraph of Article 881.04 of the Standard Specifications:

"The price shall include furnishing the equipment described above, all mounting hardware, and installing them in satisfactory operating condition."

Add the following to Article 881.04 of the Standard Specifications:

"If the work consists of retrofitting an existing polycarbonate pedestrian signal head and pedestrian countdown signal head with light emitting diodes (LEDs), it will be paid for as a PEDESTRIAN SIGNAL HEAD, LED, RETROFIT, of the type specified, and of the particular kind of material, when specified. Price shall be payment in full for furnishing the

equipment described above including LED modules, all mounting hardware, and installing them in satisfactory operating condition.”

TRAFFIC SIGNAL BACKPLATE

Effective: May 22, 2002

Revised: March 1, 2024

Revise the first sentence of Article 1078.03 of the Standard Specifications to read:

“All backplates shall be louvered and made of formed ABS plastic or composite aluminum.”

Revise the first sentence of the second paragraph of Article 1078.03 of the Standard Specifications to read:

“The backplate shall be composed of one or two pieces.”

Delete the second sentence of the fourth paragraph of Article 1078.03 of the Standard Specifications.

Add the following to the fourth paragraph of Article 1078.03 of the Standard Specifications:

“When retro reflective sheeting is specified, it shall be Type ZZ sheeting according to Article 1091.03 and applied in preferred orientation for the maximum angularity according to the vendor’s recommendations. The retroreflective sheeting shall be installed under a controlled environment by the Manufacturer/Vendor before shipment to the Contractor. The formed plastic backplate shall be prepared and cleaned, following recommendations of the retroreflective sheeting Manufacturer.”

DETECTOR LOOP

Effective: May 22, 2002

Revised: March 1, 2024

Procedure.

A minimum of seven (7) working days prior to the Contractor cutting loops, the Contractor shall mark the proposed loop locations and contact the Area Traffic Signal Maintenance and Operations Engineer to inspect and approve the layout. When preformed detector loops are installed, the Contractor shall have them inspected and approved prior to the pouring of the Portland cement concrete surface, using the same notification process as above.

Installation.

Revise Article 886.04 of the Standard Specifications to read:

“Loop detectors shall be installed according to the requirements of the “District One Standard Traffic Signal Design Details.” Saw-cuts (homeruns on preformed detector loops) from the loop to the edge of pavement shall be made perpendicular to the edge of pavement when possible in order to minimize the length of the saw-cut (homerun on preformed detector loops) unless directed otherwise by the Engineer or as shown on the plans.

The detector loop cable insulation shall be labeled with the cable specifications.

Each loop detector lead-in wire shall be labeled in the handhole using a waterproof tag secured to each wire with nylon ties.

Resistance to ground shall be a minimum of 500 mega-ohms under any conditions of weather or moisture. Inductance shall be more than 50 and less than 700 microhenries.

- (a) Type I. All loops installed in new asphalt pavement shall be installed in the binder course and not in the surface course. The edge of pavement, curb, and handhole shall be cut with a 1/4 in. (6.3 mm) deep x 4 in. (100 mm) saw cut to mark the location of each loop cable.
- (b) Loop sealant shall be two-component thixotropic chemically cured polyurethane from an approved Vendor. The sealant shall be installed 1/8 in. (3 mm) below the pavement surface. If installed above the surface, the excess shall be removed immediately.
- (c) Preformed. This work shall consist of furnishing and installing a rubberized or cross-linked polyethylene heat resistant preformed traffic signal loop in accordance with the Standard Specifications, except for the following:
 - 1. Preformed detector loops shall be installed in the sub-base under the Portland cement concrete pavement. Loop lead-ins shall be extended to a temporary protective enclosure near the proposed handhole location. The protective enclosure shall provide sufficient protection from other construction activities and may be buried for additional protection.
 - 2. Handholes shall be placed next to the shoulder or back of curb when preformed detector loops enter the handhole. CNC, included in this pay item, shall be used to protect the preformed lead-ins from back of curb to the handhole.
 - 3. Preformed detector loops shall be factory assembled with ends capped and sealed against moisture and other contaminants. The loop configurations and homerun lengths shall be assembled for the specific application. The loop and homerun shall be constructed using a minimum 5/8 in. (16 mm) outside diameter, minimum 3/8 in. (9.5 mm) inside diameter Class A oil resistant synthetic cord reinforced hydraulic hose with 250 psi (1,720 kPa) internal pressure rating or a similarly sized XLPE cable jacket. The hose for the loop and homerun assembly shall be one continuous piece. No joints or splices shall be allowed in the hose except where necessary to connect homeruns to the loops. This will provide maximum wire protection and loop system strength. Hose tee connections shall be heavy duty high temperature synthetic rubber. The tee shall be of proper size to attach directly to the hose, minimizing glue joints. The tee shall have the same flexible properties as the hose to ensure that the whole assembly can conform to pavement movement and shifting without cracking or breaking. For XLPE jacketed preformed loops, all splice connections shall be soldered, sealed, and tested before being sealed in a high impact glass impregnated plastic splice enclosure. The wire used shall be #16 THWN stranded copper. The number of turns in the loop shall be application specific. Homerun wire pairs shall be twisted a minimum

of eight turns per foot. No wire splices will be allowed in the preformed loop assembly. The loop and homeruns shall be filled and sealed with a flexible sealant to ensure complete moisture blockage and further protect the wire. The preformed loops shall be constructed to allow a minimum of 6-1/2 ft of extra cable in the handhole."

Method of Measurement.

Add the following to Article 886.05 of the Standard Specifications:

"Preformed detector loops will be measured along the detector loop embedded in the pavement, rather than the actual length of the wire. Detector loop measurements shall include the saw cut and the length of the detector loop wire to the edge of pavement. The detector loop wire, including all necessary connections for proper operations, from the edge of pavement to the handhole, shall be included in the price of the detector loop. CNC, trench and backfill, and drilling of pavement or handholes shall be included in detector loop quantities."

Basis of Payment. This work shall be paid for at the contract unit price per FOOT (meter) for DETECTOR LOOP, TYPE I or PREFORMED DETECTOR LOOP as specified in the plans, which price shall be payment in full for furnishing and installing the detector loop and all related connections for proper operation.

VIDEO VEHICLE DETECTION SYSTEM

Effective: January 1, 2020

Revised: March 1, 2024

Description. This work shall consist of furnishing and installing a video vehicle detection system as specified and/or as shown on the plans. This pay item shall include all necessary work and equipment required to have a fully operational system including but not limited to the detector unit/s, the interface unit and all the necessary hardware, cables and accessories required to complete the installation in accordance with the manufacturer's specifications.

The video vehicle detection system shall work under all weather conditions, including rain, freezing rain, snow, wind, dust, fog, and changes in temperature and light. It shall work in an ambient temperature range of -34 to 74 degrees Celsius.

The video vehicle detection system shall be compatible with the District's approved traffic controller assemblies utilizing NEMA TS 1 or NEMA TS 2 controllers and cabinet components for full time operation. The video vehicle detection system shall provide a minimum of one interface unit that has Ethernet connectivity, surge protection and shall be capable of supporting a minimum of 2 detector units. The video vehicle detection system shall include a display inside the cabinet that has a minimum 10" screen with a minimum 1280 x 800 resolution. The display shall be temperature rated for the cabinet environment.

The video vehicle detection system shall be one of the following systems or an approved equivalent:

- Autoscope Vision
- Iteris Vantage Next

A representative from the supplier of the video vehicle detection system shall supervise the installation and testing of the video vehicle detection system and shall be present at the traffic signal turn-on inspection. Once the video vehicle detection system is configured, it shall not need reconfiguration to maintain performance, unless the roadway configuration or the application requirements change.

The mounting location/s of the detector unit/s shall be per the manufacturer's recommendations. If an extension mounting assembly is needed, it shall be included in this item. All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

The video detection system shall be warrantied for a period of two (2) years from final inspection and shall be free from material and workmanship defects.

Basis of Payment. This work shall be paid for at the contract unit price each for VIDEO VEHICLE DETECTION SYSTEM, SINGLE APPROACH, the price of which shall include the cost for all of the work and material described herein and includes furnishing, installing, delivery, handling, testing, set-up and all appurtenances and mounting hardware necessary for a fully operational video vehicle detection system.

RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, DETECTOR UNIT

Effective: January 1, 2002

Revised: July 1, 2015

This item shall consist of relocating the existing emergency vehicle priority system, detector unit (single channel or dual channel) from its existing location to a new traffic signal post or mast arm assembly and pole, and connecting it to an emergency vehicle priority system, phasing unit. If the existing Emergency Vehicle Priority System, Detector Unit Assembly includes a Confirmation Beacon, the Confirmation Beacon shall also be relocated and connected to the Emergency Vehicle Priority System, Detector Unit and shall be included at no cost in this item.

The emergency vehicle system is not to be inoperative for more than 8 hours and the Contractor must notify the Municipality or Fire Protection District 72 hours prior to the disconnection of the equipment.

Basis of Payment. This item will be paid for at the contract unit price each for RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, DETECTOR UNIT.

RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, PHASING UNIT

Effective: January 1, 2002

Revised: July 1, 2015

This item shall consist of relocating the existing emergency vehicle priority system phasing unit from an existing traffic signal controller cabinet to a new traffic signal controller cabinet, as indicated in the plans or as directed by the Engineer.

The work shall include disconnecting the emergency vehicle priority system phasing unit(s) and reconnecting it into the new traffic signal controller cabinet.

The emergency vehicle system is not to be inoperative for more than 8 hours and the Contractor must notify the Municipality or Fire Protection District 72 hours prior to the disconnection of the

equipment. The Contractor must demonstrate to the satisfaction of the Engineer that the emergency vehicle system operates properly.

Basis of Payment.

This item will be paid for on a basis of one (1) EACH per intersection for RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, PHASING UNIT.

OUTDOOR RATED NETWORK CABLE

Effective: November 1, 2023

Description.

This work shall consist of furnishing and installing a network cable from the traffic signal cabinet to the associated field device as shown on the plans

Materials.

The outdoor rated network cable shall be a black Category 5e cable, meeting the TIA/EIA 568-B.2 telecommunication standards. The cable shall be composed of 24 AWG solid bare copper conductors, twisted pairs, polyolefin insulation, inner LLPE jacket, overall shield (100% coverage), 24 AWG stranded TC drain wire, industrial grade sunlight- and oil-resistant LLPE jacket. The cable shall be capable of performing from -40 °F to 160 °F.

Each end of the cable shall be terminated with an RJ-45 connector installed according to the TIA/EIA 568B standard. The drain wire at the cabinet end shall be terminated with a ring lug and attached to a suitable ground point.

The work shall be performed according to the applicable portions of Section 873 of the "Standard Specifications", and details as shown on the plans.

Basis of Payment.

This work will be paid for at the contract unit price per FOOT for OUTDOOR RATED NETWORK CABLE, the unit price shall include all equipment, materials and labor required to furnish and install the cable and making all connections necessary for proper operation. The unit price shall also include furnishing and installing the RJ-45 connectors, ring terminals and grounding the cable.

ACCESSIBLE PEDESTRIAN SIGNALS

Effective: April 1, 2003

Revised: March 1, 2025

Description. This work consists of furnishing and installing accessible pedestrian signals (APS). Each APS consists of an interactive vibrotactile pedestrian push-button with a speaker, informational sign, light emitting diode (LED) indicator light, solid-state electronic control board, power supply, wiring, and mounting hardware. The APS must meet the requirements of the MUTCD and Sections 801 and 888 of the Standard Specifications, except as modified herein.

Add the following to Article 888.03 of the Standard Specifications:

“A mounting bracket and/or extension must be used to assure proper orientation and accessibility where needed. The bracket and/or extension is included in the cost of the pedestrian push-button. The Contractor is not allowed to install a push-button assembly with the sign below the push-button to meet mounting requirements.”

Add the following to Article 1074.02 of the Standard Specifications:

“Stations must be designed to be mounted to a post, mast arm pole or wood pole. The station must be aluminum and must accept a 3 in. round push-button assembly and a regulatory pedestrian instruction sign according to MUTCD sign series R10-3e 9 in. x 15 in. sign with arrow(s) for a countdown pedestrian signal. Stations must be powder coated yellow with a black push-button and a stainless steel tactile arrow on the push-button.”

Electrical Requirements. The APS must operate with systems providing 95 to 130 VAC, 60 Hz and throughout an ambient air temperature range of -29 to +160 °F (-34 to +70 °C).

The APS shall contain a power protection circuit consisting of both fuse and transient protection.

Audible Indications. A push-button locator tone must sound at each push-button and must be deactivated during the associated walk indication and when associated traffic signals are in flashing mode. Push-button locator tones must have a duration of 0.15 seconds or less and must repeat at 1 second intervals. Each actuation of the push-button must be accompanied by the speech message “Wait”. Locator tones must be audible 6 to 12 ft from the push-buttons.

If two accessible pedestrian push-buttons are placed less than 10 ft apart or placed on the same pole, the audible walk and don’t walk indication must be a speech message. This speech message must sound throughout the Walk interval only. The common street name must be used and not the route number of the street unless there is no common street name. Locations without a street name (ex: private benefit driveways, shopping plaza entrances, etc.) must use the general term “Commercial Driveway” as a street name for that leg. The speech message must be modeled after: “[Street Name]. Walk Sign is on to cross [Street Name].” For signalized intersections utilizing exclusive pedestrian phasing, the verbal message must be “Walk sign is on for all crossings”. Speech walk messages should not contain any additional information, except they should include designations such as “Street” or “Avenue” where this information is necessary to avoid ambiguity at a particular location.

In addition, a speech push-button information message must be provided by actuating the APS push-button during the Don’t Walk interval. This verbal message must be modeled after: “Wait”. The extended press option verbal message must be: “Wait to cross [Street Name] at [Street Name]”.

Where two accessible pedestrian push-buttons are separated by 10 ft or more, the Walk indication must be an audible percussive tone. The percussive tone must repeat at 8 to 10 ticks per second with a dominant frequency of 880 Hz. Percussive tones must be uniform at all stations at the intersection and must not change for different directions.

Automatic volume adjustments in response to ambient traffic sound level must be provided up to a maximum volume of 100 dB. Locator tones and speech messages must be no more than 5 dB louder than ambient sound. Locator tones and speech messages must be programmed at the

same volume; one must not be significantly louder than the other and must be adjusted as directed by the Engineer.

Railroad Preemption.

At locations interconnected to a railroad crossing, APS push-buttons must be capable of receiving a railroad preemption similar to a traffic signal controller and must be hard wired to the railroad preemption relay inside the traffic signal cabinet. A shelf mount control unit must be provided and installed inside the cabinet capable of receiving and transmitting the railroad preemption to all the push-buttons.

At railroad intersections, all APS push-buttons must use speech messages only and must follow the below speech models.

During Don't Walk: "Wait to cross [Street Name] at [Street Name]. Caution, Walk time shortened when train approaches." – this does not repeat, plays only once with every push-button press.

During Walk: "[Street Name.] Walk sign is on to cross [Street Name]" – this repeats as many times as possible during Walk interval only.

During Railroad preemption: All push-buttons simultaneously state "Train Approaching" – this message must be stated two (2) times.

At locations with emergency vehicle preemption (EVP), no additional speech message will be provided during preemption.

At locations with an equestrian push-button style installation, the APS push-buttons must use speech messages only and must emit the audible message from the bottom mounted push-button only.

Locations with Corner Islands or Center Medians

At locations with corner islands, push-buttons must follow the requirements as specified herein regarding the use of a percussive tone vs. a speech message. When push-buttons are closer than 10 ft apart, the speech message must follow the format specified herein for the main street crossing. The speech message must follow the below speech models for the unusual configurations.

Crossing of the right turn lane from or to Corner Island: "Wait to cross right turn lane for [Street Name] at [Street Name]" and "Walk sign is on to cross right turn lane for [Street Name] at [Street Name]".

Crossing from Corner Island to Corner Island where second pushbutton actuation is required: "Wait to cross [Street Name] at [Street Name] to median with second push-button" and "Walk sign is on to cross [Street Name] to median with second push-button".

Center medians on divided highways with a single push-button must have a dual tactile arrow on the push-button.

Pedestrian Pushbutton. Pedestrian push-buttons must be at least 2 in. (50 mm) in diameter or width. The force required to activate the push-button must be no greater than 3.5 lb (15.5 N).

A red LED must be located on or near the push-button which, when activated, acknowledges the pedestrian's request to cross the street.

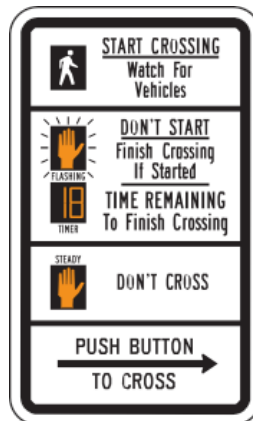
APS push-button systems that utilize any wireless technology to place calls or communicate with the traffic signal controller, including Bluetooth technology, will not be allowed. A central control unit must be provided and installed in the traffic signal cabinet with the latest available firmware. Push-buttons must be connected directly to the central control unit in the traffic signal cabinet using only 2 wires. All push-buttons must be capable of placing a pedestrian call request into the controller and must be hard wired. APS push-buttons must be a direct replacement of existing standard push-buttons and must be weather resistant with a minimum warranty of five (5) years.

APS push-buttons must be compatible with one another and easily replaceable on future replacements or maintenance repairs. Multiple model variations will not be allowed.

All APS push-buttons must come with speech messages pre-programmed for each particular intersection regardless of their location or distance of separation. Final field adjustments, including the use of percussive tones or speech messages, must be completed once push-buttons are installed in the final location. All push-buttons must be programmed with the appropriate parameters and settings as directed by the Engineer. These settings must be standard for all push-buttons and will vary based on the manufacturer. Access to push-button settings must be provided via an application either through wired, wireless or Bluetooth connection. Push-button information, settings and access instructions must all be provided in a weatherproof pouch and safely stored inside each traffic signal cabinet.

The Contractor must remove any existing pedestrian isolation boards, field wire terminals and any wires to the board when easily accessible. If the pedestrian isolation board has been installed from the factory on the back panel of the cabinet, the Contractor is to disconnect the power to the isolation board and any wires while leaving the board mounted. This work is included in the cost of APS and will not be paid for separately.

Signage. A sign must be located immediately above the pedestrian push-button and parallel to the crosswalk controlled by the push-button. The sign must conform to the following standard MUTCD design: R10-3e.



R10-3E

Tactile Arrow. A tactile arrow, pointing in the direction of travel controlled by a push-button, must be provided on the push-button.

Vibrotactile Feature. The push-button must pulse when depressed and must vibrate continuously throughout the Walk interval.

Basis of Payment. This work will be paid for at the contract unit price per EACH for ACCESSIBLE PEDESTRIAN SIGNALS and includes furnishing, installation, mounting hardware, extension brackets, and programming of the push-button.

TEMPORARY TRAFFIC SIGNAL INSTALLATION

Effective: May 22, 2002

Revised: March 1, 2025

Revise Section 890 of the Standard Specifications to read:

Description.

This work shall consist of furnishing, installing, maintaining, and removing a temporary traffic signal installation as shown on the plans, including but not limited to temporary signal heads, emergency vehicle priority systems, interconnect, vehicle detectors, uninterruptable power supply, and signing. When temporary traffic signals will be operating within a traffic signal system, the equipment shall be compatible with the current operating requirements of the system. For integration into an Advanced Traffic Management System (ATMS) such as Centrac, Tactics, or TransSuite, the controller shall have the latest version of approved NTCIP software installed.

General.

Only an approved controller Vendor will be allowed to assemble a temporary traffic signal and railroad traffic signal cabinet. Traffic signal inspection and TURN-ON shall be according to 800.01TS TRAFFIC SIGNAL GENERAL REQUIREMENTS special provision.

Construction Requirements.

(a) Controllers. Only controllers supplied by one of the District approved Vendors will be approved for use at temporary signal locations. All controllers used for temporary traffic signals shall be fully actuated NEMA microprocessor based with RS232 data entry ports compatible with existing monitoring software approved by IDOT District 1, installed in NEMA TS2 cabinets with 8 phase back panels, capable of supplying 255 seconds of cycle length and individual phase length settings up to 99 seconds. On projects with one lane open and two-way traffic flow, such as bridge deck repairs, the temporary signal controller shall be capable of providing an adjustable all red clearance setting of up to 250 seconds in length. All controllers used for temporary traffic signals shall meet or exceed the requirements of Section 857 of the Standard Specifications with regards to internal time base coordination and preemption. All railroad interconnected temporary controllers and cabinets shall be new and shall satisfy the requirements of Article 857.02 of the Standard Specifications and as modified herein. On projects with multiple temporary traffic signal installations, all controllers shall be the same Manufacturer brand and model number with the latest version software installed at the time of the signal TURN-ON, or as specified in the Contract.

- (b) Cabinets. Only control equipment, including controller cabinet and peripheral equipment, supplied by one of the District approved Vendors will be approved for use at temporary traffic signal locations. All control equipment for the temporary traffic signal(s) shall be furnished by the Contractor unless otherwise stated in the Contract. All temporary traffic signal cabinets shall have a closed bottom. The bottom shall be sealed along the entire perimeter of the cabinet base to ensure a water, dust, animal, and insect-proof seal. The bottom shall provide a minimum of two (2) 4 in. (100 mm) diameter holes to run the electric cables through. The 4 in. (100 mm) diameter holes shall have a bushing installed to protect the electric cables and shall be sealed after the electric cables are installed.
- (c) Grounding. Grounding shall be provided for the temporary traffic signal cabinet meeting or exceeding the applicable portions of the National Electrical Code, Section 806 of the Standard Specifications and shall meet the requirements of the "Grounding of Traffic Signal Systems" section of 800.01TS TRAFFIC SIGNAL GENERAL REQUIREMENTS special provision.
- (d) Traffic Signal Heads. All traffic signal sections shall be 12 in. (300 mm). Pedestrian signal sections shall be 16 in. (406mm) x 18 in. (457mm). All signal heads shall be furnished with tunnel visors unless otherwise specified in the contract. Traffic signal sections shall be Light Emitting Diode (LED) with expandable view, unless otherwise approved by the Engineer. Pedestrian signal heads shall be LED Pedestrian Countdown Signal Heads. The temporary traffic signal heads shall be placed as indicated on the temporary traffic signal plan or as directed by the Engineer. If no traffic staging is in place or will not be staged on the day of the turn on, the temporary traffic signal shall have the signal head displays, signal head placements and controller phasing match the existing traffic signal or shall be as directed by the Engineer. The Contractor shall furnish enough extra cable length to relocate heads to any position on the span wire or at locations illustrated on the plans for construction staging. The temporary traffic signal shall remain in operation during all signal head relocations. Each temporary traffic signal head shall have its own cable from the controller cabinet to the signal head.
- (e) Interconnect.
 - (1) Temporary traffic signal interconnect shall be provided using fiber optic cable or wireless interconnect technology as specified in the Contract. If the Contract specifies fiber optic cable to be used for temporary interconnect, the Contractor may request, in writing, to substitute the fiber optic temporary interconnect with a wireless interconnect. The Contractor must provide assurances that the radio device will operate properly at all times and during all construction staging. If approved for use by the Engineer, the Contractor shall submit marked-up traffic signal plans indicating locations of radios and antennas and installation details. If wireless interconnect is used, and in the opinion of the Engineer it is not viable, or if it fails during testing or operations, the Contractor shall be responsible for installing all necessary poles, fiber optic cable, and other infrastructure for providing temporary fiber optic interconnect at no cost to the Contract.
 - (2) The existing system interconnect and phone lines are to be maintained as part of the Temporary Traffic Signal Installation specified for on the plan. If the existing

traffic signal has a cellular modem, the modem shall be temporarily relocated to the temporary signal and then back to the existing or proposed cabinet at the end of the contract unless the contract specifies otherwise. The temporary signal cabinet shall have an antenna supplied by the Contractor. Any existing network switches shall be temporarily relocated to the temporary signal and relocated back to the existing cabinet at the end of construction if a new switch is not being installed. Any existing pan-tilt-zoom (PTZ) cameras shall be temporarily relocated to the temporary signal. The interconnect, including any required fiber splices and terminations, shall be installed into the temporary controller cabinet as per the notes or details on the plans. All labor and equipment required to install and maintain the existing interconnect as part of the Temporary Traffic Signal Installation shall be included in the cost of TEMPORARY TRAFFIC SIGNAL INSTALLATION. The temporary traffic signal interconnect shall maintain interconnect communications throughout the entire signal system for the duration of the project.

- (3) Temporary wireless interconnect for closed-loop systems. The radio interconnect system shall be compatible with Eagle/Yunex or Econolite controller closed loop systems. This work shall include all temporary wireless interconnect components at the adjacent existing traffic signal(s) to provide a completely operational closed loop system. This work shall include all materials, labor and testing to provide the completely operational closed loop system as shown on the plans. The radio interconnect system shall include the following components:

- a. Rack or Shelf Mounted RS-232 Frequency Hopping Spread Spectrum (FHSS) Radio
- b. Software for Radio Configuration (Configure Frequency and Hopping Patterns)
- c. Antennas (Omni Directional or Yagi Directional)
- d. Antenna Cables, LMR400, Low Loss. Maximum 100 ft from controller cabinet to antenna
- e. Brackets, Mounting Hardware, and Accessories Required for Installation
- f. RS232 Data Cable for Connection from the radio to the local or master controller
- g. All other components required for a fully functional radio interconnect system

All controller cabinet modifications and other modifications to existing equipment that are required for the installation of the radio interconnect system components shall be included in the cost of TEMPORARY TRAFFIC SIGNAL INSTALLATION.

The radio interconnect system may operate at 900Mhz (902-928) or 2.4 Ghz depending on the results of a site survey. The telemetry shall have an acceptable rate of transmission errors, time outs, etc. comparable to that of a hardwire system.

The proposed or existing master controller and telemetry module shall be configured for use with the radio interconnect at a minimum rate of 9600 baud.

The radio interconnect system shall include all other components required for a complete and fully functional telemetry system and shall be installed in accordance with the Vendor's recommendations.

Temporary wireless interconnect for Advanced Traffic Management Systems. The radio interconnect system shall be compatible with an ATMS.

- (f) Emergency Vehicle Preemption. All emergency vehicle preemption equipment (light detectors, light detector amplifiers, confirmation beacons, etc.) as shown on the temporary traffic signal plans shall be provided by the Contractor. It shall be the Contractor's responsibility to contact the municipality or fire district to verify the brand of emergency vehicle preemption equipment to be installed prior to the Contract bidding. The equipment must be completely compatible with all components of the equipment currently in use by the Agency. All light operated systems shall operate at a uniform rate of 14.035 hz ± 0.002 , or as otherwise required by the Engineer, and provide compatible operation with other light systems currently being operated in the District. All labor and material required to install and maintain the Emergency Vehicle Preemption installation shall be included in the item TEMPORARY TRAFFIC SIGNAL INSTALLATION.
- (g) Vehicle Detection. All temporary traffic signal installations shall have vehicular detection installed at all approaches of the intersection and as directed by the Engineer. Video vehicle detection systems shall be approved by IDOT prior to the Contractor furnishing and installing. The Contractor shall install, wire, and adjust the alignment of the video vehicle detection system in accordance to the Manufacturer's recommendations and requirements. The Contractor shall be responsible for adjusting the alignment of the video vehicle detection system for all construction staging changes and for maintaining proper alignment throughout the project. The Vendor shall be present and assist the contractor in setting up the video vehicle detection system. An in-cabinet video monitor shall be provided with all video vehicle detection systems and shall be included in the item TEMPORARY TRAFFIC SIGNAL INSTALLATION.
- (h) Pedestrian push-buttons. Pedestrian push-buttons shall be provided for all pedestrian signal heads/phases or as directed by the Engineer. Accessible Pedestrian Signal (APS) buttons shall be installed at any location where they currently exist. All push-buttons shall be latching and have MUTCD R10-3e signs with proper arrows.
- (i) Uninterruptable Power Supply. All temporary traffic signal installations shall have an Uninterruptable Power Supply (UPS). The UPS cabinet shall be mounted to the temporary traffic signal cabinet and shall be according to the applicable portions of Section 862 of the Standard Specifications and as modified in the current District One Traffic Signal Special Provision 862.01TS UNINTERRUPTABLE POWER SUPPLY, SPECIAL.
- (j) Signs. All existing signs shall be removed from existing poles and relocated to the temporary signal. If new mast arm assembly and pole(s) and posts are specified for

- the permanent signals, the signs shall be relocated to the new equipment at no extra cost. Any signs that are required for the temporary traffic signal shall be provided as shown on the plans or as directed by the Engineer. Relocation, removing, bagging and installing signs for the various construction stages shall be provided as shown on the plans or as directed by the Engineer. If Illuminated Street Name Signs exist, they shall be taken down and stored by the Contractor, and the Contractor shall furnish reflectorized street name signs on the temporary traffic signal installation.
- (k) Energy Charges. The electrical utility energy charges for the operation of the temporary traffic signal installation shall be paid for by others if the installation replaces an existing signal. Otherwise, charges shall be paid for under 109.05 of the Standard Specifications.
- (l) Maintenance.
- (1) Maintenance shall meet the requirements of the Standard Specifications and the "Maintenance and Responsibility of Traffic Signal and Flashing Beacon Installations" section of the current District One Traffic Signal Special Provision 800.01TS TRAFFIC SIGNAL GENERAL REQUIREMENTS.
- (2) Maintenance of temporary signals and of the existing signals shall be included in the cost of the TEMPORARY TRAFFIC SIGNAL INSTALLATION pay item. When temporary traffic signals are to be installed at locations where existing signals are presently operating, the Contractor shall be fully responsible for the maintenance of the existing signal installation as soon as they begin any physical work on the Contract or any portion thereof.
- (3) The temporary signal responsibility shall begin at the start of temporary signal construction and shall end with the removal of the signal as directed by the Engineer.
- (m) Temporary Traffic Signals for Bridge Projects. Temporary Traffic Signals for bridge projects shall follow the State Standards, Standard Specifications, Special Provisions and any plans for Bridge Temporary Traffic Signals included in the Contract. The installation shall meet the Standard Specifications and all other requirements in this TEMPORARY TRAFFIC SIGNAL INSTALLATION specification. In addition, all electric cable shall be aerially suspended at a minimum height of 18 ft (5.5m) on temporary wood poles (Class 5 or better) of 45 ft (13.7 m) minimum height. The signal heads shall be span wire mounted or bracket mounted to the wood pole or as directed by the Engineer. The Controller cabinet shall be mounted to the wood pole as shown in the plans, or as directed by the Engineer. A video vehicle detection system may be used in place of detector loops as approved by the Engineer or as shown in the Contract.
- (n) Temporary Portable Traffic Signal for Bridge Projects.
- (1) The controller and cabinet shall be NEMA type designed for NEMA TS2 Type 1 operation. Controller and LED signal displays shall meet the applicable Standard Specifications and all other requirements in this TEMPORARY TRAFFIC SIGNAL INSTALLATION special provision.

(2) Work shall be according to Article 701.18(b) of the Standard Specifications except as noted herein.

(3) General.

- a. The temporary portable bridge traffic signals shall be trailer-mounted units. The trailer-mounted units shall be set up securely and level. Each unit shall be self-contained and consist of two signal heads. The left signal head shall be mounted on a mast arm capable of extending over the travel lane. Each unit shall contain a solar cell system to facilitate battery charging. There shall be a minimum of twelve (12) days backup reserve battery supply and the units shall be capable of operating with a 120 V power supply from a generator or electrical service.
- b. All signal heads located over the travel lane shall be mounted at a minimum height of 17 ft (5 m) from the bottom of the signal back plate to the top of the road surface. All far right signal heads located outside the travel lane shall be mounted at a minimum height of 8 ft (2.5 m) from the bottom of the signal back plate to the top of the adjacent travel lane surface.
- c. The long all red intervals for the traffic signal controller shall be adjustable up to 250 seconds in one-second increments.
- d. As an alternative to detector loops, temporary portable bridge traffic signals may be equipped with other approved methods of vehicle detection and traffic actuation.
- e. All portable traffic signal units shall be interconnected using hardwire communication cable. Radio communication equipment may be used only with the approval of the Engineer. If radio communication is used, a site analysis shall be completed to ensure that there is no interference present that would affect the traffic signal operation. The radio equipment shall meet all applicable FCC requirements.
- f. The temporary portable bridge traffic signal system shall meet the physical display and operational requirements of conventional traffic signals as specified in Part IV and other applicable portions of the currently adopted version of the Manual on Uniform Traffic Control Devices (MUTCD) and the Illinois MUTCD. The signal system shall be designed to continuously operate over an ambient temperature range between -30°F (-34°C) and 120°F (48°C). When not being utilized to inform and direct traffic, portable signals shall be treated as non-operating equipment according to Article 701.11.

Basis of Payment.

This work shall be paid for at the Contract unit price each for TEMPORARY TRAFFIC SIGNAL INSTALLATION, TEMPORARY BRIDGE TRAFFIC SIGNAL INSTALLATION, or TEMPORARY PORTABLE BRIDGE TRAFFIC SIGNAL INSTALLATION, the price of which shall include all costs for the modifications required for traffic staging, changes in signal phasing as required in the Contract plans, video vehicle detection systems, any

maintenance or adjustment to the video vehicle detection system, the temporary wireless interconnect system, temporary fiber optic interconnect system, all material required, the installation and complete removal of the temporary traffic signal, and any changes required by the Engineer. Each location will be paid for separately.

TEMPORARY TRAFFIC SIGNAL TIMING

Effective: May 22, 2002

Revised: March 1, 2024

Description.

This work shall consist of developing and maintaining appropriate traffic signal timings for the specified intersection for the duration of the temporary signalized condition, as well as impact to existing traffic signal timings caused by detours or other temporary conditions.

All timings and adjustments necessary for this work shall be performed by an approved Consultant who has previous experience in optimizing Traffic Signal Systems for District One of the Illinois Department of Transportation. The Contractor shall contact the Traffic Signal Engineer for a listing of approved Consultants.

The following tasks are associated with TEMPORARY TRAFFIC SIGNAL TIMING:

- (a) Consultant shall attend temporary traffic signal inspection (turn-on) and/or detour meeting and conduct on-site implementation of the traffic signal timings.
- (b) Consultant shall be responsible for making fine-tuning adjustments to the timings in the field to alleviate observed adverse operating conditions and to enhance operations.
- (c) Consultant shall provide monthly observation of traffic signal operations in the field.
- (d) Consultant shall provide on-site consultation and adjust timings as necessary for construction stage changes, temporary traffic signal phase changes, and any other conditions affecting timing and phasing, including lane closures, detours, and other construction activities.
- (e) Consultant shall make timing adjustments and prepare comment responses as directed by the Area Traffic Signal Maintenance and Operations Engineer.
- (f) Return original timing plan once construction is complete.

Basis of Payment.

The work shall be paid for at the Contract unit price EACH for TEMPORARY TRAFFIC SIGNAL TIMING, which price shall be payment in full for performing all work described herein per intersection. When the temporary traffic signal installation is turned on and/or detour implemented, 50 percent of the bid price will be paid. The remaining 50 percent of the bid price will be paid following the removal of the temporary traffic signal installation and/or detour.

LED INTERNALLY ILLUMINATED STREET NAME SIGN

Effective: May 22, 2002

Revised: July 1, 2021

Description.

This work shall consist of furnishing and installing a LED internally illuminated street name sign.

Materials.

The illuminated street name sign shall be as follows.

(a) Description.

The LEDs shall be white in color. The LED internally illuminated street name sign shall display the designated street name clearly and legibly in the daylight hours without being energized and at night when energized. White translucent Type ZZ reflective sheeting sign faces with the street name applied in transparent green shall be installed on the street sign acrylic panels which shall be affixed to the interior of the sign enclosure. Sheeting material shall be of one continuous piece. Paneling shall not be allowed. Hinged door(s) shall be provided for easy access to perform general cleaning and maintenance operations. Illumination shall occur with LED Light Engine as specified.

(b) Environmental Requirements.

The LED lamp shall be rated for use in the ambient operating temperature range of -40 to +50°C (-40 to +122°F) for storage in the ambient temperature range of -40 to +75°C (-40 to +167°F).

(c) General Construction.

1. The LED components, power supply, and wiring harness shall be arranged as to allow for maintenance, up to and including the replacement of all three components. The LED Light Engine shall be mounted in the top and/or bottom of the sign housing and no components of the light source shall sit between the sign faces.
2. The assembly and manufacturing processes of the LED Light Engine shall be designed to ensure that all LED and electronic components are adequately supported to withstand mechanical shocks and vibrations in compliance with the specifications of the ANSI C136.31-2001 standards.

(d) Mechanical Construction.

1. The sign shall be constructed using a weatherproof, aluminum housing consisting of an extruded aluminum with the maximum sign dimensions of 30" in height, 96" in length, 10.75" in depth (including the drip edge) and shall not weight more than 110 pounds. All housing corners are continuous TIG (Tungsten Inert Gas) welded to provide a weatherproof seal.
2. The sign doors shall be continuous TIG welded along the two corners with the other two screwed together to make one side of the door removable for installation of the sign face. The door is fastened to the housing on the bottom by a full length stainless steel hinge. The sign shall also be fabricated in a way to ensure that no components fall out while a technician is opening or working inside the sign enclosure. The door shall be held secure onto a 1" wide by 5/32" thick neoprene gasket by an appropriate number of quarter-turn fasteners to form a watertight seal between the door and the housing.

3. The sign face shall be constructed of .125" white translucent polycarbonate or acrylic. Sign legend shall be according to D1 Mast Arm Mounted Street Name Sign detail and MUTCD. The sign face legend background shall consist of translucent Type ZZ white reflective sheeting and transparent green film applied to the front of the sign face. The legend shall be framed by a white border. A logo symbol and/or name of the community may be included with approval of the Engineer.
4. All fasteners and hardware shall be corrosion resistant stainless steel. No special tools shall be required for routine maintenance.
5. All wiring shall be secured by insulated wire compression nuts or barrier type terminal blocks.
6. A wire entrance junction box shall be supplied with the sign assembly. The box may be supplied mounted to the exterior or interior of the sign and shall provide a weather tight seal.
7. A photoelectric switch shall be mounted inside control cabinet to control lighting functions for day and night display. Each sign shall be individually fused.
8. Brackets and Mounting: LED internally illuminated street name signs will be factory drilled to accommodate mast arm two-point support assembly mounting brackets unless indicated otherwise in the plans. A 72" stainless steel safety cable shall be included and installed with each mounting bracket.

(e) Electrical.

1. Photocell shall be rated 105-305V, turn on at 1.5 fcs. with a 3-5 second delay. A manufacturer's warranty of six (6) years shall be provided. Power consumption shall be no greater than 1 watt at 120V.
2. The LED Light Engine shall operate from a 60 +/- 3 cycle AC line power over a voltage range of 80 to 135 Vac rms. Fluctuations in line voltage over the range of 80 to 135 Vac shall not affect luminous intensity by more than +/- 10%.
3. Total harmonic distortion induced into the AC power line by the LED Light Engine, operated at a nominal operating voltage and at a temperature of +25°C (+77°F), shall not exceed 20%.
4. The LED Light Engine shall cycled ON and OFF with a photocell as shown on the detail sheet and shall not exceed 120 Watts. The signs shall be installed such that they are not energized when traffic signals are powered by an alternate energy source such as a generator or uninterruptable power supply (UPS).

(f) Photometric Requirements.

1. The entire surface of the sign panel shall be evenly illuminated. The average maintained luminous intensity measured across the letters, operating under the conditions defined in Environmental Requirements and Wattage Sections shall be of a minimum value of 100 cd/m².

2. The manufacturer shall make available independent laboratory test results to verify compliance to Voltage Range and Luminous Intensity Distribution Sections.
3. LED shall have a color temperature of 5200k nominal, CRI of 80 with a life expectancy of 75,000 hrs.

(g) **Quality Assurance.**

The LED Light Engine shall be manufactured in accordance with a vendor quality assurance (QA) program. The production QA shall include statistically controlled routine tests to ensure minimum performance levels of the LED Light Engine build to meet this specification. QA process and test result documentations shall be kept on file for a minimum period of seven (7) years. The LED Light Engine that does not satisfy the production QA testing performance requirements shall not be labeled, advertised, or sold as conforming to these specifications. Each LED Light Engine shall be identified by a manufacturer's serial number for warranty purposes. LED Light Engines shall be replaced or repaired if they fail to function as intended due to workmanship or material defects within the first sixty (60) months from the date of acceptance. LED Light Engines that exhibit luminous intensities less than the minimum value specified in Photometric Section within the first thirty-six (36) months from the date of acceptance shall be replaced or repaired.

Installation.

The sign shall be located on a steel traffic signal mast arm no further than 8-feet from the center of the pole to the center of the sign at a height of between 16 to 18-feet above traveled pavement. Mounting hardware shall be from an approved vendor, utilizing stainless steel components.

Basis of Payment.

This work will be paid for at the contract unit price EACH for LED INTERNALLY ILLUMINATED STREET NAME SIGN, of the length as specified in the contract plans which shall be payment in full for furnishing and installing the LED internally illuminated street name sign, complete with circuitry and mounting hardware including photo cell, circuit breaker, fusing, relay, connections and cabling as shown on the plans for proper operation and installation.

The Illuminated street name sign cable will be paid for at the contract unit price per FOOT for ELECTRIC CABLE IN CONDUIT, STREET NAME SIGN, NO. 14 3C, TYPE SOOW, which price shall be payment in full for furnishing, installing and making all electrical connections necessary for proper operations.

CELLULAR MODEM

Effective: November 1, 2023

Description.

The work shall include but not be limited to installation, set-up, support and configuration of the cellular communication system to work with IDOT District One's network. Equipment shall include but limited to 1) a rugged cellular modem certified with Verizon Wireless designed with 2 ethernet ports and an RS232 port for connection the traffic signal controller, 2) an external low profile antenna mounted to the traffic signal cabinet, 3) a router with 2 ethernet ports with static IP address assigned by IDOT, 4) for those traffic signals with controllers that are not ethernet compatible, additional hardware and cabling will be needed, 5) all appurtenances necessary to

provide cellular communication for the closed-loop system or centralized management system as indicated on the plans. IDOT District One has installed cellular communication equipment at various locations within the District. For questions regarding these locations, please contact the Traffic Signal Engineer at 847-705-4424. The necessary SIM card will be provided by the District once testing has been completed and accepted by IDOT.

Method of Measurement.

Each item of equipment as noted above, furnished, and installed, inspected, accepted, and documented for one location shall be counted as a single unit for payment.

Basis of Payment.

This work will be paid for at the contract unit price per EACH for CELLULAR MODEM, which price shall be payment in full for performing all work described herein.

LAYER II DATALINK SWITCH

Effective: November 1, 2023

Revised: September 1, 2024

Description.

This work shall consist of furnishing and installing a Layer II Ethernet switch used to transmit data from one traffic signal cabinet to another traffic signal cabinet containing a Layer II switch or a Layer III (Network) switch.

Materials.

The Layer II switch shall be environmentally hardened with a minimum of (2) 1Gbps SFP ports and (8) 1Gbps copper RJ45 ports. Two SFP ports shall be populated with environmentally hardened optical modules capable of transmitting the designed distance on single-mode and / or multi-mode fiber optic cable as defined in the plans. An environmentally hardened power supply with input of 120 VAC and sufficient wattage for the switch shall be provided.

The switch shall conform to the following minimum specifications:

- Forwarding Bandwidth 3.8Gbps
- Switching Bandwidth 7.6Gbps
- Forwarding rate: 5.66Mpps with 64-byte packets (Line-rate at all packet sizes)
- Egress buffer: 2 MB
- Unicast MAC addresses: 8000
- Internet Group Management Protocol (IGMP) multicast groups: 255
- Virtual LANs (VLANs): 256
- IPv4 MAC security ACEs: 384 (default Ternary Content-Addressable Memory [TCAM] template)
- Bidirectional, 128 NAT translation entries
- IPv4 routing: 2000 routes, IPv6 routing: 1750 routes
- Layer 2 switching: IEEE 802.1, 802.3, 802.3at, 802.3af standard (see Table 8), VTPv2, NTP, UDLD, CDP, LLDP, Unicast MAC filter, Resilient Ethernet Protocol (REP), Media Redundancy Protocol (MRP) Ring (IEC 62439-2)
- Security: SCP, SSH, SNMPv3, TACACS+, RADIUS Server/Client, MAC Address Notification, BPDU Guard, SPAN session
- Multicast: IGMPv1, v2, v3 Snooping, IGMP filtering, IGMP Querier
- Safety certifications:

- UL/CSA 60950-1
 - EN 60950-1
 - CB to IEC 60950-1 (with country deviations)
 - NOM to NOM-019-SCF1 (through partners and distributors)
 - CE Marking
- Hazard location:
 - ANSI/ISA 12.12.01 (Class1, Div2 A-D)
 - EN 60079-0, -15 ATEX Certificate (Class 1, Zone2 A-D)
- EMC emissions and immunity compliance:
 - FCC 47 CFR Part 15 Class A
 - EN 55022A Class A
 - VCCI Class A
 - RoHS compliance
 - AS/NZS CISPR 22 Class A, AS/NZS CISPR 24
 - CISPR11 Class A, CISPR22 Class A
 - ICES 003 Class A
 - CE Marking
 - IEC/EN/EN61000-4-2 (Electro Static Discharge), 15kV air/8kV contact
 - IEC/EN 61000-4-3 (Radiated Immunity, 10 and 20 V/m)
 - IEC/EN 61000-4-4 (Fast Transients - 4kV power line, 4kV data line)
 - IEC/EN 61000-4-5 (Surge 2 kV/1 kV)
 - IEC/EN 61000-4-6 (Conducted Immunity, 10 V/emf)
 - IEC/EN 61000-4-8 (Power Frequency Magnetic Field Immunity)
 - IEC/EN 61000-4-9 (Pulse Magnetic Field Immunity)
 - IEC/EN 61000-4-10 (Oscillatory Magnetic Field Immunity)
 - IEC/EN 61000-4-11 (AC power Voltage Immunity)
 - IEC/EN 61000-4-29 (Voltage Dips Immunity)
 - IEC/EN 61000-6-1 (Immunity for Light Industrial Environments)
 - IEC/EN 61000-6-2 (Immunity for Industrial Environments)
 - IEC/EN 61000-6-4 Class A
 - EN 61326
- Shock and vibration:
 - IEC 60068-2-27 (Operational Shock: 30G 11ms, half sine)
 - IEC 60068-2-27 (Non-Operational Shock 55-70G, trapezoidal)
 - IEC 60068-2-6, IEC 60068-2-64, EN 61373 (Operational Vibration)
 - IEC 60068-2-6, IEC 60068-2-64, EN 61373 (Non-operational Vibration)
- Industry standards:
 - UL508
 - CSA C22.2 No. 142
 - EN 61131-2 (EMC/EMI, environmental, mechanical)
 - Substation KEMA (IEEE 1613, IEC 61850-3)
 - EN50121-3-2
 - EN50121-4
 - NEMA TS-2 (EMC, environmental, mechanical)
 - ABB Industrial IT certification
 - IP30
 - ODVA Industrial Ethernet/IP support
- Corrosive testing:
 - ISO-12944-6
 - IEC-60068-2-60

- Humidity:
 - IEC 60068-2-52 (salt fog mist, test Kb) marine environments
 - IEC 60068 -2-3
 - IEC 60068-2-30
 - Relative humidity: 5% to 95% non-condensing
- Operating temperature:
 - -40C to +70C (vented enclosure - 40 LFM Air Flow)
 - -40C to +60C (sealed enclosure – 0 LFM Air Flow)
 - -34C to +75C (fan or blower-equipped enclosure – 200 LFM Air Flow)
 - -40C to +85C (IEC 60068-2-2 Environmental Type Testing – 16 hours)
- Operational altitude: Up to 15,000 ft
- Storage temperature:
 - -40 C to +85 C (storage temperature)
 - IEC 60068-2-14
- Storage altitude: Up to 15,000 ft
- Mean time between failure: 374,052 hours (42.7 years)
- Warranty: Five-year

The Cisco IE-3100-8T2C-E Industrial Ethernet Switch and Cisco GLC-LX-SM-RGD SFP are compliant with this specification. Other manufacturers that comply with this specification are allowed.

Construction Requirements

The Layer II switch and its power supply shall be mounted to either a standard DIN rail or an equipment mounting channel in the cabinet. The power supply shall be hard-wired to the cabinet power, not plugged into one of the traffic signal cabinet power outlets.

Configuration Design Document.

A configuration design document shall be submitted within 60 days after contract award. It shall be prepared by a designer with a minimum of CCNP certification – and shall include proof of currently active CCNP credentials. The document shall contain actual configuration files for each switch to be delivered under this contract.

The Layer II switch shall be configured to be compatible with the IDOT D1 field network design. High level guidance (IP Scheme / VLANs / routing protocols, etc.) will be provided by IDOT but the integration, functionality and compatibility with the existing network are the responsibility of the contractor.

The configuration design document shall meet the acceptance of the IDOT engineer. Contractor to coordinate with IDOT Electric Maintenance Contractor and Network engineer for proper set up and IP configuration.

Basis of Payment.

This work will be paid for at the contract unit price per EACH for LAYER II DATALINK SWITCH, the price of which shall include all equipment, materials, and labor required to furnish, configure and install the switch, including all necessary connectors, cables, fiber optic jumpers, hardware, software, and other peripheral equipment required to place the switch in operation to the satisfaction of the Traffic Engineer.

LAYER III NETWORK SWITCH

Effective: November 1, 2023

Description.

This work shall consist of furnishing and installing a Layer III Ethernet switch used to transmit data from one traffic signal cabinet to another traffic signal cabinet containing a Layer II switch or a Layer III (Network) switch.

Materials.

The Layer III switch shall be environmentally hardened with a minimum of 16 1Gbps SFP ports and 12 1Gbps copper RJ45 ports. All SFP ports shown on the plans shall be populated with environmentally hardened optical modules capable of transmitting the appropriate distance as shown on the plans on single-mode fiber optic cable. An environmentally hardened power supply with input of 120 VAC and sufficient wattage for the switch shall be provided.

The switch shall conform to the following minimum specifications:

- Forwarding bandwidth: 28 Gbps (line rate/non-blocking)
- Switching bandwidth: 56 Gbps (Switching bandwidth is full-duplex capacity)
- Forwarding rate: 41.67 mpps with 64 byte packets (line rate for all ports and packet sizes)
- Number of queues: 4 egress
- Unicast MAC addresses: 16,000
- IGMP multicast groups: 1000
- Number of VLANs: 1000
- IPv4 MAC security ACEs: 1000 with default TCAM template
- NAT translation: Bidirectional, 128 unique subnet NAT translation entries, which can expand to tens of thousands of translated entries if designed
- Warranty: Five-year
- Layer 2 switching: IEEE 802.1, 802.3, 802.3at, 802.3af standard, VTPv2, NTP, UDLD, CDP, LLDP, Unicast Mac filter, Flexlink, VTPv3, EtherChannel, Voice VLAN, QinQ tunneling
- Security: SCP, SSH, SNMPv3, TACACS+, RADIUS Server/Client, MAC Address Notification, BPDU Guard, Port-Security, Private VLAN, DHCP Snooping, Dynamic ARP Inspection, IP Source Guard, 802.1x, Guest VLAN, MAC Authentication Bypass, 802.1x Multi-Domain Authentication, Storm Control, Trust Boundary, Cisco TrustSec@security, FIPS 140-2, ACT2, Secure Boot, Full flexible Netflow1
- Layer 2 multicast: IGMPv1, v2, v3 Snooping, IGMP filtering, IGMP Querier
- Quality of Service (QoS): Ingress Policing, Rate-Limit, Egress Queueing/shaping, AutoQoS, Modular QoS CLI (MQC)
- Layer 2 IPv6: IPv6 Host support, HTTP over IPv6, SNMP over IPv6
- Layer 3 routing: IPv4 Static Routing
- Layer 2 switching with 1:1 static Network Address Translation (NAT)
- Utility: IEEE 1588v2 PTP Power Profile, dying gasp, GOOSE messaging, SCADA protocol classification, MODBUS TCP/IP Memory Maps, utility SmartPort macro, BFD, Ethernet OAM, IEEE 802.3ah, CFM (IEEE 802.1ag)
- Redundancy:
 - Redundancy Ethernet Protocol ring (REP)
 - Parallel Redundancy Protocol (PRP)
 - High Availability Seamless Redundancy (HSR), PTP over HSR

- Media Redundancy Protocol (MRP) ring, MRP Auto Manager (MAM)
- IP multicast: PIM Sparse Mode (PIM-SM), PIM Dense Mode (PIM-DM), and PIM sparse-dense mode
- IP unicast routing protocols: OSPF, EIGRP, BGPv4, IS-IS, RIPv2, Policy-Based Routing (PBR), HSRP
- IPv6 routing: RIPv6, OSPFv6, and EIGRPv6 support
- Security: IEEE 802.1AE MACsec (including PSK based MKA support), Cisco TrustSec®, SGT inline tagging and SGACL, Full flexible Netflow

The Cisco IE-4010-16S12P Industrial Ethernet Switch is compliant with this specification. Other manufacturers that comply with this specification are allowed.

The Layer III switch and its power supply shall be mounted to either a standard DIN rail or an equipment mounting channel in the cabinet. The power supply shall be hard-wired to the cabinet power, not plugged into one of the traffic signal cabinet power outlets.

Configuration Design Document.

A configuration design document shall be submitted within 60 days after contract award. It shall be prepared by a designer with a minimum of CCNP certification – and shall include proof of currently active CCNP credentials. The document shall contain actual configuration files for each switch to be delivered under this contract.

The Layer III switch shall be configured to be compatible with the IDOT D1 field network design. High level guidance (IP Scheme / VLANs / routing protocols, etc.) will be provided by IDOT but the integration, functionality and compatibility with the existing network are the responsibility of the contractor.

The configuration design document shall meet the acceptance of the IDOT engineer. Contractor to coordinate with IDOT Electric Maintenance Contractor and Network engineer for proper set up and IP configuration.

Basis of Payment. This work will be paid for at the contract unit price per EACH for LAYER III NETWORK SWITCH, the price of which shall include all equipment, materials, and labor required to furnish, configure and install the switch, including all necessary connectors, cables, fiber optic jumpers, hardware, software, and other peripheral equipment required to place the switch in operation to the satisfaction of the Traffic Engineer.

CENTRACS LICENSE EXPANSION

Effective: November 1, 2023

Description.

This work shall consist of providing a license for the addition of a traffic signal controller to the existing CENTRACS system and programming the intersection into the existing CENTRACS system.

General.

This pay item may be grouped per job. For example a 50 unit license pack is acceptable for a job with 45 intersections. Individual licenses not needed but part of package shall be provided to

IDOT Electrical Maintenance Contractor. Vendor shall coordinate with EMC contractor to transfer the unused licenses.

The CENTRACS system shall be programmed for complete functionality of the intersection traffic signal controller.

Basis of Payment.

This work shall be paid for at the contract unit price per EACH for CENTRACS LICENSE EXPANSION. The unit price shall include all equipment; materials; licenses, programming; testing and documentation; and labor required to add a traffic signal controller to the CENTRACS system

REMOTE CONTROLLED VIDEO SYSTEM

Effective: November 1, 2023

892.08TS

Description.

This work shall consist of furnishing and installing an IP based remote controlled video system at a location designated by the Traffic Engineer. The work shall include a color camera, dome assembly, all mounting hardware, connectors, cables, power injectors, and related equipment necessary to complete the installation according to the manufacturer's specifications. Any licensing required for adding the camera to the CENTRACS CCTV VIDEO MODULE will be provided by The Department. Configuration of the camera into the centralized system shall be part of this pay item.

Materials.

The PTZ camera shall be one of the following approved models:

- TKH Security Solutions PD1103Z2-E
- AXIS Q6075-E
- Cohu 4220HD

The Contractor shall furnish the required number of power injectors for the camera make and model selected, including operation of the camera heater, as well as all required mounting hardware, connectors, patch cables, and power supplies. The system shall have anonymous FTP capabilities disabled by the vendor/equipment supplier or provide a feature for the user to disable the functionality through the standard internal menu.

Installation.

The camera shall be installed as shown on the plans, either on the luminaire arm near the luminaire, or on the combination mast arm assembly pole, angled toward the center of the intersection using a mounting bracket compatible with the camera and procured from one of the approved camera manufacturers. When installed on the pole, the camera shall be mounted to provide a minimum of 12 inches clear space between face of the pole and the camera housing. When installed on the luminaire arm, the camera shall be installed with a 30-degree tilt-adjustable bracket. The camera and any external hardware and housing shall be installed with stainless steel straps.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent the chafing of wires.

The Contractor shall contact the Traffic Engineer prior to installing the camera and associated wiring, to receive final approval on the camera location. If the Remote Controlled Video System will be connected to the Gigabit Ethernet network, then a Layer II (Datalink) Switch and/or a Layer III (Network) Switch shall be required. Layer II and Layer III switches shall be installed as shown on the plans. Contractor to coordinate with IDOT Electric Maintenance Contractor and Network engineer for proper set up and IP configuration. The remote controlled video system shall be warrantied, free from material and workmanship defects for a period of three years from final acceptance.

Basis of Payment.

This work will be paid for at the contract unit price per EACH for REMOTE CONTROLLED VIDEO SYSTEM, The unit price shall include all associated equipment, hardware, cables, materials and labor required to install the complete system in place and in operation to the satisfaction of the Traffic Engineer. The OUTDOOR RATED NETWORK cable from the traffic signal cabinet will be paid for separately. If required, the LAYER II (DATALINK) SWITCH and/or the LAYER III (NETWORK) SWITCH will be paid for separately.

REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT

Effective: May 22, 2002

Revised: March 1, 2024

Add the following to Article 895.05 of the Standard Specifications:

"The traffic signal equipment which is to be removed and is to become the property of the Contractor shall be disposed of outside the right-of-way at the Contractor's expense.

All equipment to be returned to the State shall be delivered by the Contractor to the State's Traffic Signal Maintenance Contractor's main facility. The Contractor shall contact the State's Electrical Maintenance Contractor to schedule an appointment to deliver the equipment. No equipment will be accepted without a prior appointment. All equipment shall be delivered within thirty (30) days of removing it from the traffic signal installation. The Contractor shall provide one hard copy and one electronic file of a list of equipment that is to remain the property of the State, including model and serial numbers, where applicable. The Contractor shall also provide a copy of the Contract plan or special provision showing the quantities and type of equipment. Controllers and peripheral equipment from the same location shall be boxed together (equipment from different locations may not be mixed) and all boxes and controller cabinets shall be clearly marked or labeled with the location from which they were removed. If equipment is not returned according to these requirements, it will be rejected by the State's Electrical Maintenance Contractor. The Contractor shall be responsible for the condition of the traffic signal equipment from the time Contractor takes maintenance of the signal installation until approval by the Department. A delivery receipt will be signed by the State's Electrical Maintenance Contractor indicating the items have been returned.

The Contractor shall safely store and arrange for pick up or delivery of all equipment to be returned to agencies other than the State. The Contractor shall package the equipment and provide all necessary documentation as stated above.

Traffic signal equipment which is lost, damaged, or not returned to the Department for any reason shall be replaced with new equipment meeting the requirements of these Specifications at no cost to the contract."

INTERCEPT EXISTING CONDUIT

Description. This work shall consist of intercepting an existing underground conduit and rerouting into and out of a hand hole or communication vault.

Materials. Materials shall conform to Article 810.02

Construction Requirements. Installation: The contractor shall reroute and extend the conduit as needed to allow conductors to pass through hand hole or vault. New conduit and fittings that match existing conduit shall be added as needed to allow conductors to pass through the hand hole or vault.

The existing cable shall be removed prior to rerouting the conduit.

Method of Measurement. This work will be measured for payment per each hole that is drilled in an existing junction box.

Basis of Payment. This work will be paid for at the contract unit price EACH for INTERCEPT EXISTING CONDUIT which will be payment in full for performing the work described herein.

RECTANGULAR RAPID FLASHING BEACON ASSEMBLY (COMPLETE)

Description. This work shall consist of furnishing and installing the Rectangular Rapid Flashing Beacon (RRFB) Assembly complete with RRFB; power supply; traffic signal post and powder coating the post; concrete foundation; pedestrian push button; warning signs and plaques; controller and cabinet; and wireless communication equipment as shown on the plans and/or as specified by the Engineer. All equipment and hardware required to mount the RRFB and associated equipment to the assembly shall be included in the unit cost of this item.

Materials. All components shall be manufactured and assembled as a complete system and consist of the following:

Rectangular Rapid Flashing Beacon: Each RRFB assembly shall satisfy the FHWA Manual on Uniform Traffic Control Devices, 11th Edition, dated December 2023, including the unit size, mounting location, flash rate, and operational parameters unless modified herein by this special provision. The RRFB assembly shall be programmable to allow the setting of the duration of the flashing beacon display based on the crossing time requirements established in the MUTCD. The Contractor shall furnish and install directional RRFB units with indicator lights mounted to the sign structure as indicated on

the plans. The minimum size of the LED beacon shall be 7 inches x 3 inches with a minimum spacing between the two indications of at least 7 inches. The RRFB shall be able to be seen at least 1,000 feet in advance of the crossing during the day. The RRFB shall have an operating temperature meeting NEMA specifications.

Power Supply: The installation shall be solar powered power supply.

Solar Power Supply: The solar power supply shall be easy to install, fully self-contained weather, corrosion, and vandal-resistant, with a UV-resistant solar panel. The solar power supply shall be powered autonomously without need of an external power supply. The batteries shall be sealed, maintenance free, and field-replaceable independently of other components. The battery pack shall have a minimum rated lifespan of three years. The power supply system shall have the capacity to operate the RRFB for 30 days at a normal use of 400 activations of 30 seconds per day without solar charging. The RRFB shall have an automatic light control to provide useful light during extreme conditions that prevent charging over an extended period of time. The manufacturer shall provide documentation for each installation consisting of solar power calculations to verify load, duty cycle and battery capacity based on location.

The solar panel shall be installed at the highest point on the assembly structure, or as directed by the Engineer, and away from the travelled way. The solar panel shall be installed at an angle specified by the manufacturer facing the equator (due south) with a full unobstructed solar exposure for optimum performance of the system, or as recommended by the manufacturer and directed by the Engineer. If batteries are to be installed in a separate cabinet, the cabinet shall be a minimum of seven feet above the ground and located on the post as to be not over the sidewalk, bike path or trail.

Controller: The RRFB controller shall meet the requirements of Section 858 of the "Standard Specifications" except where modified herein:

- A. Power Options: The controller unit shall be solar-powered.
- B. Controller to Controller Communication: At each location all installed RRFB assemblies shall communicate wirelessly using an unlicensed radio band so as to simultaneously commence operation of their alternating rapid flashing indications and cease operation simultaneously. The communication equipment shall comply with FCC requirements and the vendor representative shall field test the equipment prior to placing the units in operation to demonstrate the RRFBs ability to achieve proper operation under the requirements of FHWA Memorandum IA-21 and all subsequent interpretation letters. Up to 10 optional RF channels shall be available to allow multiple RRFB Systems to operate within close proximity of each other.
- C. Timing: The controller shall provide the full programmed timing upon all push button activations.

Traffic Signal Post: The traffic signal post shall be stainless steel meeting the requirements of Section 875 of the "Standard Specifications". Post shall be powder coated with black finish.

Foundation: The traffic signal post foundation may be either concrete or metal.

- A. Concrete Foundation: If used, the concrete foundation shall meet the requirements of Section 878 of the “Standard Specifications”.
- B. Light Pole Foundation Metal: If used the metal foundation shall meet the requirements of Section 836 of the “Standard Specifications”.

Pedestrian Push Button: The pedestrian push button shall meet the requirements of the “Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way” adopted September 7, 2023 and Sections 801 and 888 of the Standard Specifications except as modified herein. Each pedestrian pushbutton shall include a speaker, an informational sign, a light emitting diode (LED) indicator light, a solid state electronic control board, a power supply, wiring, and mounting hardware.

Electrical Requirements. The APS shall operate with systems providing 95 to 130 VAC, 60 Hz and throughout an ambient air temperature range of -29 to +160 °F (-34 to +70 °C).

The APS shall contain a power protection circuit consisting of both fuse and transient protection.

Audible Indications. A pushbutton locator tone shall sound at each pushbutton. Pushbutton locator tones shall have a duration of 0.15 seconds or less and shall repeat at 1-second intervals.

Each actuation of the pushbutton shall be accompanied by the speech message “Warning lights are flashing”. The message shall be spoken twice. There shall be no percussive indication.

Automatic volume adjustments in response to ambient traffic sound level shall be provided up to a maximum volume of 100 dBA. Locator tone and verbal messages shall be no more than 5 dB louder than ambient sound.

Pedestrian Pushbutton. Pedestrian pushbuttons shall be at least 2 in. (50 mm) in diameter or width. The force required to activate the pushbutton shall be no greater than 3.5 lb (15.5 N).

Signage. A sign shall be located immediately above the pedestrian pushbutton and parallel to the crosswalk controlled by the pushbutton. The sign shall be standard MUTCD design R10- 25.

Tactile Arrow. A tactile arrow, pointing in the direction of travel controlled by a pushbutton, shall be provided either on the pushbutton or its sign. There shall be **no vibrotactile indication**.

Beacon Flashing Requirements: RRFBs shall provide 75 flashing sequences per minute. During each 800-millisecond flashing sequence, the left and right RRFB indications for each approach shall operate using the following sequence:

1. The RRFB indications on the left-hand sides for each of the opposing approaches shall be illuminated for approximately 50 milliseconds. All RRFB indications shall be dark for approximately 50 milliseconds.
2. The RRFB indication on the right-hand side for each of the opposing approaches shall be illuminated for approximately 50 milliseconds. All RRFB indications shall be dark for approximately 50 milliseconds.
3. The RRFB indications on the left-hand sides for each of the opposite approaches shall be illuminated for approximately 50 milliseconds. All RRFB indications shall be dark for approximately 50 milliseconds.
4. The RRFB indications on the right-hand sides for each of the opposite approaches shall be illuminated for approximately 50 milliseconds. All RRFB indications shall be dark for approximately 50 milliseconds.
5. All RRFB indications shall be illuminated for approximately 50 milliseconds. All RRFB indications shall be dark for approximately 50 milliseconds.
6. All RRFB indications shall be illuminated for approximately 50 milliseconds. All RRFB indications shall be dark for approximately 250 milliseconds.

The flash rate of each individual RRFB indication, as applied over the full flashing sequence, shall not be between 5 and 30 flashes per second to avoid frequencies that might cause seizures. The RRFB shall be rated for Class I light intensity output according to the Society of Automotive Engineers (SAE) Standard J595 with a 15 year life expectancy. During the night time hours, the RRFB shall be equipped with an automatic dimming feature.

Signs: Each RRFB assembly shall include two crossing signs (W11-2) 30 inch x 30 inch dimension, two diagonal downward pointing arrow (W16-7P) plaques 21 inch x 15 inch dimension, mounted back-to-back and a R10-25 9 inch x 12 inch dimension, mounted as part of or above the pedestrian push button. The W-series sign panels shall be manufactured with fluorescent yellow green type ZZ sheeting meeting the requirements of Section 1091 of the "Standard Specifications". The R-series signs shall be manufactured with type AP sheeting meeting the requirements of Section 1091 of the "Standard Specifications" and shall be vandal resistant. All signs shall meet the latest requirements of the MUTCD.

Warranty: All materials shall be warranted for three years from date of acceptance or turn on.

Installation. The RRFB Assembly (Complete) shall be installed strictly according to the manufacturer's recommendations, the applicable portions of the "Standard Specifications" as modified herein, as shown on the Plans, and/or as directed by the Engineer.

The final elevation and location of the beacons shall be approved by the Engineer prior to the Contractor beginning work.

Basis of Payment. This work will be paid at the contract unit price for EACH RECTANGULAR RAPID FLASHING BEACON ASSEMBLY (COMPLETE) per each leg of the roundabout as shown on the plans. The unit price shall include all labor, equipment, materials and documentation required to furnish and install the RRFB assembly complete with power supply; traffic signal post

and powder coating the post; foundation; pedestrian push button; warning signs and plaques; controller and cabinet; wireless communication equipment; and mounting hardware.

GENERAL ELECTRICAL REQUIREMENTS (D1)

Effective: January 1, 2025

This special provision replaces Articles 801.01 – 801.07, 801.09 – 801-16 of the Standard Specifications.

Definition. Codes, standards, and industry specifications cited for electrical work shall be by definition the latest adopted version thereof, unless indicated otherwise.

Materials by definition shall include electrical equipment, fittings, devices, motors, appliances, fixtures, apparatus, all hardware and appurtenances, and the like, used as part of, or in connection with, electrical installation.

Standards of Installation. Materials shall be installed according to the manufacturer's recommendations, the NEC, OSHA, the NESC, and AASHTO's Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals.

All like materials shall be from the same manufacturer. Listed and labeled materials shall be used whenever possible. The listing shall be according to UL or an approved equivalent.

Safety and Protection. Safety and protection requirements shall be as follows.

Safety. Electrical systems shall not be left in an exposed or otherwise hazardous condition. All electrical boxes, cabinets, pole handholes, etc. which contain wiring, either energized or non-energized, shall be closed or shall have covers in place and be locked when possible, during nonworking hours.

Protection. Electrical raceway or duct openings shall be capped or otherwise sealed from the entrance of water and dirt. Wiring shall be protected from mechanical injury.

Equipment Grounding Conductor. All electrical systems, materials, and appurtenances shall be grounded. Good ground continuity throughout the electrical system shall be assured, even though every detail of the requirements is not specified or shown. Electrical circuits shall have a continuous insulated equipment grounding conductor. When metallic conduit is used, it shall be bonded to the equipment grounding conductor, but shall not be used as the equipment grounding conductor.

Detector loop lead-in circuits, circuits under 50 volts, and runs of fiber optic cable will not require an equipment grounding conductor.

Where connections are made to painted surfaces, the paint shall be scraped to fully expose metal at the connection point. After the connection is completed, the paint system shall be repaired to the satisfaction of the Engineer.

Bonding of all boxes and other metallic enclosures throughout the wiring system to the equipment grounding conductor shall be made using a splice and pigtail connection. Mechanical connectors shall have a serrated washer at the contact surface.

All connections to structural steel or fencing shall be made with exothermic welds. Care shall be taken not to weaken load carrying members. Where connections are made to epoxy coated reinforcing steel, the epoxy coating shall be sufficiently removed to facilitate a mechanical connection. The epoxy coating shall be repaired to the satisfaction of the Engineer. Where connections are made to insulated conductors, the connection shall be wrapped with at least four layers of electrical tape extended 6 in. (150 mm) onto the conductor insulation.

Submittals. At the preconstruction meeting, the Contractor shall submit a written listing of manufacturers for all major electrical and mechanical items. The list of manufacturers shall be binding, except by written request from the Contractor and approval by the Engineer. The request shall include acceptable reasons and documentation for the change.

Within 30 calendar days after contract execution, the Contractor shall submit, for approval, through the method as directed in the pre-construction meeting. Submittals for the materials for each individual pay item shall be complete in every respect. Submittals which include multiple pay items shall have all submittal material for each item or group of items covered by a particular specification, grouped together and the applicable pay item identified. Various submittals shall, when taken together, form a complete coordinated package. A partial submittal will be returned without review unless prior written permission is obtained from the Engineer.

Submittals shall be provided for all items used, temporary and permanent, for review and approval.

Equipment which will be owned and maintained by a local agency other than the State shall be reviewed and approved by that agency prior to submittal to the State. The submittal to the State shall include any comments made by the local agency.

Each PDF document must be a vector format PDF from the originating supplier or program and not scanned images.

The submittal must clearly identify the specific model number or catalog number of the item being proposed.

The submittal shall be properly identified by Pay Item Number, Contractor, route, section, county, and contract number

The Contractor shall have reviewed the submittal material and affixed the Contractor's stamp of approval, with date and signature, for each individual item prior to submittal. The Contractor's approval stamp shall be the first page of the submittal.

Illegible print, incompleteness, inaccuracy, or lack of coordination will be grounds for rejection.

Items from multiple disciplines shall not be combined on a single submittal and transmittal. Items for lighting, signals, surveillance, and CCTV must be in separate submittals since they may be reviewed by various personnel in various locations.

The Department may provide a list of pay items broken out by discipline upon request for a particular contract. In general, the disciplines are as follows:

| Discipline | Typical Items |
|---|--|
| ITS | CCTV CCTV structures Communication vaults Fiber optic Fiber optic duct Network equipment |
| Lighting | Breakaway devices Light poles Light tower Lighting cables Lighting controllers Luminaires Unit duct |
| Pump Station | All pump station equipment |
| Signing | Signing |
| Surveillance | Loop cables Detector equipment & associated structures Ramp metering & associated structures Wireless pavement sensors and assoc. structures Radar detection Data Probing Handholes Dynamic Message Signs (DMS) |
| Traffic Signal | Controllers/Cabinets Handholes Illuminated signs Pedestrian Push Buttons Signal Cable Signal Detectors Signal Heads Signal Loop Cable Signal Modules Signal Structures |
| Local Roads Lighting | Same as lighting |
| Local Roads Traffic Signal | Same as traffic signal |
| Discipline with the predominate amount of work in contract or ask Engineer. | Raceways Electric cables Junction boxes |

The Engineer will review the submittals for conformance with the design concept of the project according to Article 105.04 and the following. The Engineer will stamp the drawings indicating their status as "Approved", "Approved as Noted", "Disapproved", "incomplete", or "Information Only". Since the Engineer's review is for conformance with the design concept only, it shall be the Contractor's responsibility to coordinate the various items into a working system as specified. The Contractor shall not be relieved from responsibility for errors or omissions in the shop, working, or layout drawings by the Engineer's approval thereof. The Contractor shall still be in full compliance with contract and specification requirements.

All submitted items reviewed and marked "Disapproved", "Incomplete" or "Approved as Noted" shall be resubmitted by the Contractor in their entirety, unless otherwise indicated within the submittal comments.

Work shall not begin until the Engineer has approved the submittal. Material installed prior to approval by the Engineer, will be subject to removal and replacement at no additional cost to the Department.

Certifications. When certifications are specified and are available prior to material manufacture, the certification shall be included in the submittal information. When specified and only available after manufacture, the submittal shall include a statement of intent to furnish certification. All certificates shall be complete with all appropriate test dates and data.

Authorized Project Delay. See Article 801.08

Maintenance transfer and Preconstruction Inspection:

General. Before performing any excavation, removal, or installation work (electrical or otherwise) at the site, the Contractor shall request a maintenance transfer and preconstruction site inspection, to be held in the presence of the Engineer and a representative of the party or parties responsible for maintenance of any electrical systems (lighting, ITS, Pump Station, Surveillance, and traffic control systems) which may be affected by the work. The request for the maintenance transfer and preconstruction inspection shall be made no less than fourteen (14) calendar days prior to the desired inspection date. The maintenance transfer and preconstruction inspection shall:

Establish the procedures for formal transfer of maintenance responsibility required for the construction period.

Establish the approximate location and operating condition of the electrical systems which may be affected by the work.

Marking of Existing Cable Systems. The party responsible for maintenance of any existing electrical systems at the project site will, at the Contractor's request, mark and/or stake, once per location, all underground cable routes owned or maintained by the State. A project may involve multiple "locations" where separated electrical systems are involved (i.e. different controllers). The markings shall be taken to have a horizontal tolerance of at least 1 foot (304.8 mm) to either side. The request for the cable locations and marking shall be made at the same time the request for the maintenance transfer and preconstruction inspection is made. The Contractor shall exercise extreme caution where existing buried cable runs are involved. The markings of existing systems are made strictly for assistance to the Contractor and this does not relieve the Contractor of responsibility for the repair or replacement of any cable run damaged in the course of his work, as specified elsewhere herein. Note that the contractor shall be entitled to only one request for location marking of existing systems and that multiple requests may only be honored at the contractor's expense. No locates will be made after maintenance is transferred unless it is at the contractor's expense.

Condition of Existing Systems. The Contractor shall conduct an inventory of all existing electrical system equipment within the project limits, which may be affected by the work, making note of any parts which are found broken or missing, defective or malfunctioning. Megger and load readings shall be taken for all existing circuits which will remain in place or be modified. If a circuit is to be taken out in its entirety, then readings do not have to be taken. The inventory and test data shall

be reviewed with and approved by the Engineer and a record of the inventory shall be submitted to the Engineer for the record. Without such a record, all systems transferred to the Contractor for maintenance during construction shall be returned at the end of construction in complete, fully operating condition.”

Maintenance and Responsibility During Construction.

Lighting Operation and Maintenance Responsibility. The scope of work shall include the assumption of responsibility for the continuing operation and maintenance of the existing, proposed, temporary, sign and navigation lighting, or other lighting systems and all appurtenances affected by the work as specified elsewhere herein. Maintenance of lighting systems is specified elsewhere and will be paid for separately.

The proposed lighting system must be operational prior to opening the roadway to traffic unless temporary lighting exists which is designed and installed to properly illuminate the roadway.

Electrical Infrastructure During Construction. The scope of work shall include locating and marking the proposed underground infrastructure installed in this contract.

Energy and Demand Charges. The payment of basic energy and demand charges by the electric utility for existing lighting which remains in service will continue as a responsibility of the Owner, unless otherwise indicated. Unless otherwise indicated or required by the Engineer duplicate lighting systems (such as temporary lighting and proposed new lighting) shall not be operated simultaneously at the Owner's expense and lighting systems shall not be kept in operation during long daytime periods at the Owner's expense. Upon written authorization from the Engineer to place a proposed new lighting system in service, whether the system has passed final acceptance or not, (such as to allow temporary lighting to be removed), the Owner will accept responsibility for energy and demand charges for such lighting, effective the date of authorization. All other energy and demand payments to the utility shall be the responsibility of the Contractor until final acceptance.

Damage to Electrical Systems. Should damage occur to any existing electrical systems through the Contractor's operations, the Engineer will designate the repairs as emergency or non-emergency in nature.

Emergency repairs shall be made by the Contractor, or as determined by the Engineer, the Department, or its agent. Non-emergency repairs shall be performed by the Contractor within six working days following discovery or notification. All repairs shall be performed in an expeditious manner to assure all electrical systems are operational as soon as possible. The repairs shall be performed at no additional cost to the Department.

Lighting. An outage will be considered an emergency when three or more lights on a circuit or three successive lights are not operational. Knocked down materials, which result in a danger to the motoring public, will be considered an emergency repair.

Temporary aerial multi-conductor cable, with grounded messenger cable, will be permitted if it does not interfere with traffic or other operations, and if the Engineer determines it does not require unacceptable modification to existing installations.

Marking Proposed Locations for Highway Lighting System. The Contractor shall mark or stake the proposed locations of all poles, cabinets, junction boxes, pull boxes, handholes, cable routes, pavement crossings, and other items pertinent to the work. A proposed location inspection by the Engineer shall be requested prior to any excavation, construction, or installation work after all proposed installation locations are marked. Any work installed without location approval is subject to corrective action at no additional cost to the Department.

Inspection of electrical work. Inspection of electrical work shall be according to Article 105.12 and the following.

Before any splice, tap, or electrical connection is covered in handholes, junction boxes, light poles, or other enclosures, the Contractor shall notify and make available such wiring for the Engineer's inspection.

Testing. Before final inspection, the electrical work shall be tested. Tests may be made progressively as parts of the work are completed or may be made when the work is complete. Tests shall be made in the presence of the Engineer. Items which fail to test satisfactorily shall be repaired or replaced. Tests shall include checks of control operation, system voltages, cable insulation, and ground resistance and continuity.

The forms for recording test readings will be available from the Engineer in electronic format. The Contractor shall provide the Engineer with a written report of all test data including the following:

- Voltage Tests
- Amperage Tests
- Insulation Resistance Tests
- Continuity tests
- Resistance of Grounding Electrodes
- Detector Loop Tests

Lighting systems. The following tests shall be made.

- (1) Voltage Measurements. Voltages in the cabinet from phase to phase and phase to neutral, at no load and at full load, shall be measured and recorded. Voltage readings at the last termination of each circuit shall be measured and recorded.
- (2) Insulation Resistance. Insulation resistance to ground of each circuit at the cabinet shall be measured and recorded with all loads disconnected. Prior to performance of the insulation resistance test, the Contractor shall remove all fuses within all light pole bases on a circuit to segregate the luminaire loads.

On tests of new cable runs, the readings shall exceed 50 megohms for phase and neutral conductors with a connected load over 20A and shall exceed 100 megohms for conductors with a connected load of 20A or less.

On tests of cable runs which include cables which were existing in service prior to this contract, the resistance readings shall be the same or better than the readings recorded at the maintenance transfer at the beginning of the contract. Measurements shall be taken with a megohm meter approved by the Engineer.

- (3) Loads. The current of each circuit, phase main, and neutral shall be measured and recorded. The Engineer may direct reasonable circuit rearrangement. The current readings shall be within ten percent of the connected load based on material ratings.
- (4) Ground Continuity. Resistance of the system ground as taken from the farthest extension of each circuit run from the controller (i.e. check of equipment ground continuity for each circuit) shall be measured and recorded. Readings shall not exceed 2.0 ohms, regardless of the length of the circuit.
- (5) Resistance of Grounding Electrodes. Resistance to ground of all grounding electrodes shall be measured and recorded. Measurements shall be made with a ground tester during dry soil conditions as approved by the Engineer. Resistance to ground shall not exceed 10 ohms.

Surveillance. The following tests shall be made in addition to the lighting system test above.

- (1) Detector Loops. Before and after permanently securing the loop in the pavement, the resistance, inductance, resistance to ground, and quality factor for each loop and lead-in circuit shall be tested.
- (2) The loop and lead-in circuit shall have an inductance between 20 and 2500 microhenries.
- (3) The resistance to ground shall be a minimum of 50 megohms under any conditions of weather or moisture.
- (4) The continuity test of the loop and loop lead-in shall not have a resistance greater than two (2) ohms
- (5) The quality factor (Q) shall be 5 or greater.

Loops which fail to test satisfactorily shall be repaired or replaced.

Telecommunication Cable. Once the telecommunication cable is installed complete with all cable terminations complete the Contractor shall request an end-to-end test. The Contractor shall request the end-to-end test at least 7 days in advance to the TSC Engineer. Any lane closures and/or any other safety measures that need to be taken shall be provided for by the Contractor and shall be considered incidental to the cost of this item. The type of test performed shall be an end-to-end test with Halcyon type equipment transmitting and receiving at each end of the cable. Each pair shall be tested, and the results shall be recorded and submitted to the Engineer. If any results don't fall within the requirements set forth in (REA) PE-39, the Contractor shall correct and re-test that cable pair. Traffic Systems will tolerate only one pair out of every 100 pair of cable that doesn't meet or exceed specifications set forth in (REA) PE-39.

Wireless In-Pavement Detection Systems shall be tested in accordance with the approved testing procedures provided in the catalog cut submittal.

Fiber Optic Systems.

The Contractor shall submit detailed test procedures for approval by the Engineer. All fibers (terminated and un-terminated) shall be tested bi-directionally at both 1310 nm and 1550 nm with both an Optical Time Domain Reflectometer (OTDR) and a power meter with an optical source. For testing, intermediate breakout fibers may be concatenated and tested end-to-end. Any discrepancies between the measured results and these specifications will be resolved to the satisfaction of the Engineer.

Fibers which are not to be terminated shall be tested with a temporary fusion spliced pigtail fiber. **Mechanical splice or bare fiber adapters are not acceptable.**

The Contractor shall provide the date, time and location of any tests required by this specification to the Engineer at least 5 working (7 calendar) days before performing the test. Included with the notification shall be a record drawing of the installed fiber optic cable system. The drawings shall indicate actual installed routing of the cable, the locations of splices, and locations of cable slack with slack quantities identified.

Upon completion of the cable installation, splicing, and termination, the Contractor shall test all fibers for continuity, events above 0.1 dB, and total attenuation of the cable. The test procedure shall be as follows:

A Certified Technician utilizing an Optical Time Domain Reflectometer (OTDR) and Optical Source/Power Meter shall conduct the installation test. The test equipment used shall have been calibrated within the last two years. Documentation shall be provided. The Technician is directed to conduct the test using the standard operating procedures defined by the manufacturer of the test equipment. All fibers installed shall be tested in both directions.

A fiber ring or fiber box shall be used to connect the OTDR to the fiber optic cable under test at both the launch and receive ends. The tests shall be conducted at 1310 and 1550 nm for all fibers.

All testing shall be witnessed by the IDOT Engineer, and a copy of the test results (CD ROM or USB Drive) shall be submitted on the same day of the test. Hardcopies shall be submitted as described herein with copies on CD ROM or USB Drive.

At the completion of the test, the Contractor shall provide copies of the documentation of the test results to the Project Engineer. The test documentation shall be submitted as two bound copies and three CD ROM, or USB drive copies, and shall include the following:

Cable & Fiber Identification:

- Cable ID
- Cable Location - beginning and end point
- Fiber ID, including tube and fiber color
- Wavelength
- Pulse width (OTDR)
- Refractory index (OTDR)
- Operator Name
- Date & Time
- Setup Parameters
- Range (OTDR)
- Scale (OTDR)
- Setup Option chosen to pass OTDR "dead zone"

Test Results shall include:

- OTDR Test results
- Total Fiber Trace
- Splice Loss/Gain
- Events > 0.10 dB
- Measured Length (Cable Marking)
- Total Length (OTDR)
- Optical Source/Power Meter Total Attenuation (dB/km)

Sample Power Meter Tabulation:

| Power Meter Measurements (dB) | | | | | | | | | |
|-------------------------------|---|-----------|-------------------|---------|---------|---------|---------|-----------------------|---------|
| Location | | Fiber No. | Cable Length (km) | A to B | | B to A | | Bidirectional Average | |
| A | B | | | 1310 nm | 1550 nm | 1310 nm | 1550 nm | 1310 nm | 1550 nm |
| | | 1 | | | | | | | |
| | | | | | | | | | |
| | | 2 | | | | | | | |
| Maximum Loss | | | | | | | | | |
| Minimum Loss | | | | | | | | | |

The OTDR test results file format must be Bellcore/Telcordia compliant according to GR-196-CORE Issue 2, OTDR Data Standard, GR 196, Revision 1.0, GR 196, Revision 1.1, GR 196, Revision 2.0 (SR-4731) in a “.SOR” file format. A copy of the test equipment manufacture’s software to read the test files, OTDR and power, shall be provided to the Department. These results shall also be provided in tabular form, see sample below:

| Sample OTDR Summary | | | | |
|---------------------------|------------------|-----------------------|---------------------|----------------------------|
| Cable Designation: | <i>TCF-IK-03</i> | OTDR Location: | <i>Pump Sta. 67</i> | Date: <i>1/1/00</i> |
| Fiber Number | Event Type | Event Location | Event Loss (dB) | |
| | | | 1310 nm | 1550 nm |
| <i>1</i> | <i>Splice</i> | <i>23500 Ft.</i> | <i>.082</i> | <i>.078</i> |
| <i>1</i> | <i>Splice</i> | <i>29000 Ft.</i> | <i>.075</i> | <i>.063</i> |
| <i>2</i> | <i>Splice</i> | <i>29000 Ft.</i> | <i>.091</i> | <i>.082</i> |
| <i>3</i> | <i>Splice</i> | <i>26000 Ft.</i> | <i>.072</i> | <i>.061</i> |
| <i>3</i> | <i>Bend</i> | <i>27000 Ft.</i> | <i>.010</i> | <i>.009</i> |

The following shall be the criteria for the acceptance of the cable:

Upon completing all splicing operations for a cable span, the Contractor shall measure the mean bi-directional loss at each splice using an Optical Time Domain Reflectometer.

When splices are made between identical cables (same manufacturer and cable type) the average optical loss of each splice shall not exceed 0.10 dB. The average is determined by measuring the splice loss in both directions with an OTDR, adding the two readings, and dividing by two. Testing should be performed for both the 1310 and 1550 nm wavelengths. No individual splice loss measured in a single direction shall exceed 0.15 dB.

When splices are made between cables containing fibers of different mode field diameters, the average optical loss of each splice shall not exceed 0.50 dB. The average is

determined by measuring the splice loss in both directions with an OTDR, adding the two readings, and dividing by two. Testing should be performed for both the 1310 and 1550 nm wavelengths. No individual splice loss measured in a single direction shall exceed 0.6 dB.

The Contractor shall measure the end-to-end attenuation of each fiber, from connector to connector, using an optical power meter and source. This loss shall be measured at from both directions and shall not exceed 0.5 dB per installed kilometer of single mode cable. Measurements shall be made at both 1300 and 1550 nm for single mode cable.

For multimode cable, power meter measurements shall be made at 850 and 1300 nm. The end-to-end attenuation shall not exceed 3.8 dB/installed kilometers at 850nm or 1.8 dB per installed kilometer at 1300nm for multimode fibers.

If the total loss exceeds these specifications, the Contractor shall replace or repair the cable run at the no additional cost to the state, both labor and materials. Elevated attenuation due to exceeding the pulling tension, or any other installation operation, during installation shall require the replacement of the cable run at no additional cost to the State, including labor and materials.

All test results shall be furnished to the Engineer seven working days before the date the inspection is scheduled.

Contract Guarantee. The Contractor shall provide a written guarantee for all electrical work provided under the contract for a period of six months after the date of acceptance with the following warranties and guarantees.

- (a) The manufacturer's standard written warranty for each piece of electrical material or apparatus furnished under the contract. The warranty for light emitting diode (LED) modules, including the maintained minimum luminance, shall cover a minimum of 120 months from the date of delivery.
- (b) The Contractor's written guarantee that, for a period of six months after the date of final acceptance of the work, all necessary repairs to or replacement of said warranted material or apparatus for reasons not proven to have been caused by negligence on the part of the user or acts of a third party shall be made by the Contractor at no additional cost to the Department.
- (c) The Contractor's written guarantee for satisfactory operation of all electrical systems furnished and constructed under the contract for a period of six months after final acceptance of the work.

The warranty for an uninterruptable power supply (UPS) shall cover a minimum of two years from date the equipment is placed in operation; however, the batteries of the UPS shall be warranted for full replacement for a minimum of five years.

Record Drawings. Alterations and additions to the electrical installation made during the execution of the work shall be made on the PDF copy of the as-Let documents using a PDF editor. Hand drawn notations or markups and scanned plans are not acceptable. These drawings shall

be updated daily and shall be available for inspection by the Engineer during the work. The record drawings shall include the following:

- Cover Sheet
- The Electrical Maintenance Contract Management System (EMCMS) location designation, i.e. "L" number
- Summary of Quantities, electrical items only
- Legends, Schedules, and Notes
- Plan Sheets
- Pertinent Details
- Single Line Diagrams
- Other useful information useful to locate and maintain the systems.

Any modifications to the details shall be indicated. Final quantities used shall be indicated on the Summary of Quantities. **Foundation depths used shall also be listed.**

As part of the record drawings, the Contractor shall inventory all materials, new or existing, on the project and record information on inventory sheets provided by the Engineer.

The inventory shall include:

- Location of Equipment, including rack, chassis, slot as applicable.
- Designation of Equipment
- Equipment manufacturer
- Equipment model number
- Equipment Version Number
- Equipment Configuration
 - Addressing, IP or other
 - Settings, hardware or programmed
- Equipment Serial Number

The following electronic inventory forms are available from the Engineer:

- Lighting Controller Inventory
- Lighting Inventory
- Light Tower Inspection Checklist
- ITS Location Inventory

The information shall be entered in the forms; handwritten entries will not be acceptable; except for signatures. Electronic file shall also be included in the documentation.

When the work is complete, and seven days before the request for a final inspection, the set of contract drawings, stamped "**RECORD DRAWINGS**", shall be submitted to the Engineer for review and approval and shall be stamped with the date and the signature of the Contractor's supervising Engineer or Electrician. The record drawings shall be submitted in PDF format via a mutually agreed to electronic format for review and approval.

In addition to the record drawings, PDF copies of the final catalog cuts which have been Approved and Approved as Noted with applicable follow-up shall be submitted along with the record

drawings. **The PDF files shall clearly indicate either by filename or PDF table of contents (bookmarks) the respective pay item number.** Specific part or model numbers of items which have been selected shall be clearly visible.

During the Final Inspection, the Contractor shall provide three sets of electronically produced drawings in a moisture proof pouch to be kept on the inside door of the controller cabinet or other location approved by the Engineer. These drawings shall show the final as-built circuit orientation(s) of the project in the form of a single line diagram with all equipment designations and clearly identified.

Final documentation shall be submitted as a complete submittal package, i.e. record drawings, test results, inventory, etc. shall be submitted at the same time. Partial piecemeal submittals will be rejected without review.

A total of three hardcopies and two CD-ROMs or USB Drives of the final documentation shall be submitted. The identical material shall also be submitted in the same manner as the catalog cut submittals utilizing the following final documentation pay item numbers:

| Pay Code | Description | Discipline |
|----------|----------------------------------|----------------|
| FDLRD000 | Record Drawings - Lighting | Lighting |
| FDSRD000 | Record Drawings - Surveillance | Surveillance |
| FDTRD000 | Record Drawings - Traffic Signal | Traffic Signal |
| FDIRD000 | Record Drawings - ITS | ITS |
| FDLCC000 | Catalog Cuts - Lighting | Lighting |
| FDSCC000 | Catalog Cuts – Surveillance | Surveillance |
| FDTCC000 | Catalog Cuts – Traffic Signal | Traffic Signal |
| FDICC000 | Catalog Cuts - ITS | ITS |
| FDLWL000 | Warranty - Lighting | Lighting |
| FDSWL000 | Warranty - Surveillance | Surveillance |
| FDTWL000 | Warranty - Traffic Signal | Traffic Signal |
| FDIWL000 | Warranty - ITS | ITS |
| FDLTR000 | Test Results - Lighting | Lighting |
| FDSTR000 | Test Results - Surveillance | Surveillance |
| FDTTR000 | Test Results - Traffic Signal | Traffic Signal |
| FDITR000 | Test Results - ITS | ITS |
| FDLINV00 | Inventory - Lighting | Lighting |
| FDSINV00 | Inventory - Surveillance | Surveillance |
| FDTINV00 | Inventory - Traffic Signal | Traffic Signal |
| FDIINV00 | Inventory - ITS | ITS |
| FDLGPS00 | GPS - Lighting | Lighting |
| FDSGPS00 | GPS - Surveillance | Surveillance |
| FDTGPS00 | GPS - Traffic Signal | Traffic Signal |
| FDIGPS00 | GPS - ITS | ITS |

Record Drawings shall include Marked up plans, controller info, Service Info, Equipment Settings, Manuals, Wiring Diagrams for each discipline.

Test results shall be all electrical test results, fiber optic OTDR, and Fiber Optic power meter as applicable for each discipline.

GPS Documentation. In addition to the specified record drawings, the Contactor shall record GPS coordinates of the following electrical components being installed, modified or being affected in other ways by this contract:

- All light poles and light towers.
- Handholes and vaults.
- Junction Boxes
- Conduit roadway crossings.
- Controllers.
- Control Buildings.
- Structures with electrical connections, i.e. DMS, lighted signs.
- Electric Service locations.
- CCTV Camera installations.
- Roadway Surveillance installations.
- Fiber Optic Splice Locations.
- Fiber Optic Cables. Coordinates shall be recorded along each fiber optic cable route every 200 feet.
- Fiber Optic Utility Markers
- All fiber optic slack locations shall be identified with quantity of slack cable included. When sequential cable markings are available, those markings shall be documented as cable marking into enclosure and marking out of enclosure.
- All wireless in-pavement vehicle detectors

Datum to be used shall be North American 1983.

Data shall be provided electronically. The electronic format shall be compatible with MS Excel. Latitude and Longitude shall be in decimal degrees with a minimum of 6 decimal places. Each coordinate shall have the following information:

1. District
2. Description of item
3. Designation
4. Use
5. Approximate station
6. Contract Number
7. Date
8. Owner
9. Latitude
10. Longitude
11. Comments

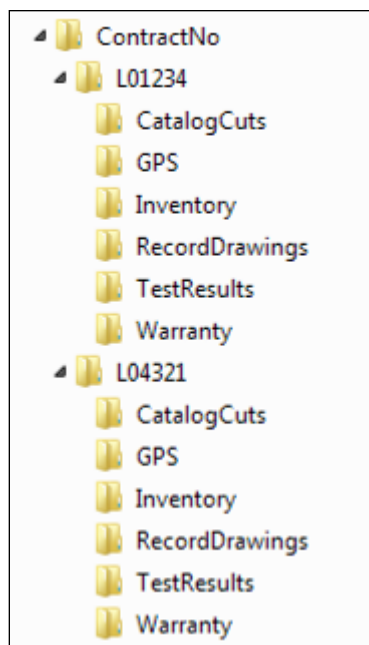
A spreadsheet template will be available from the Engineer for use by the Contractor.

Accuracy. Data collected is to be mapping grade. A handheld mapping grade GPS device shall be used for the data collection. The receiver shall support differential correction and data shall have minimum 5 meter accuracy after post processing.

GPS receivers integrated into cellular communication devices, recreational and automotive GPS devices are not acceptable.

The GPS shall be the product of an established major GPS manufacturer having been in the business for a minimum of 6 years.”

The documents on the CD ROM, or USB Drive shall be organized by the Electrical Maintenance Contract Management System (EMCMS) location designation. If multiple EMCMS locations are within the contract, separate folders shall be utilized for each location as follows:



Extraneous information not pertaining to the specific EMCMS location shall not be included in that particular folder and sub-folder.

The inspection will not be made until after the delivery of acceptable record drawings, specified certifications, and the required guarantees.

The Final Acceptance Documentation Checklist shall be completed and is contained elsewhere herein.

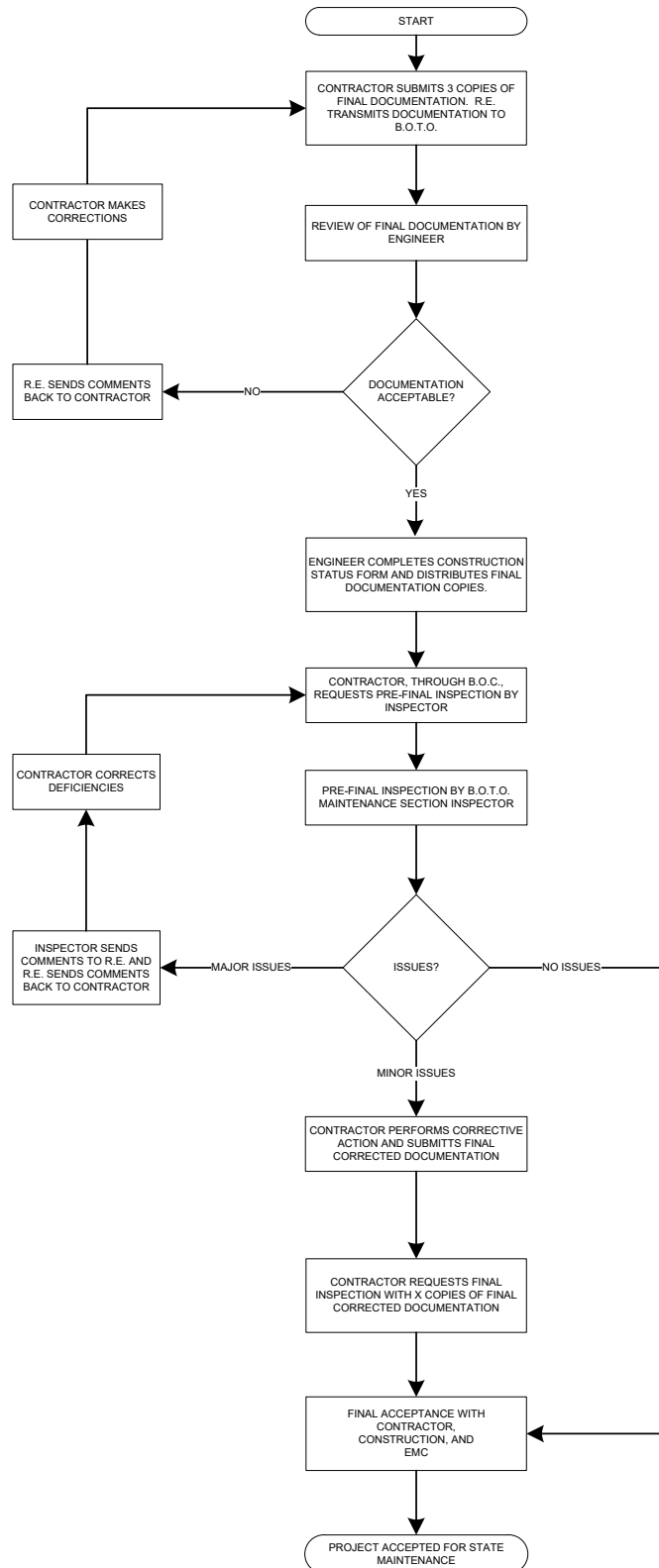
If CD's are used they shall be labeled as illustrated in the CD Label Template contained herein.

Acceptance. Acceptance of electrical work will be given at the time when the Department assumes the responsibility to protect and maintain the work according to Article 107.30 or at the time of final inspection.

When the electrical work is complete, tested, and fully operational, the Contractor shall schedule an inspection for acceptance with the Engineer no less than seven working days prior to the desired inspection date. The Contractor shall furnish the necessary labor and equipment to make the inspection.

A written record of the test readings taken by the Contractor according to Article 801.13 shall be furnished to the Engineer seven working days before the date the inspection is scheduled. Inspection will not be made until after the delivery of acceptable record drawings, specified certifications, and the required guarantees.

FAP ROUTE 326 (IL 47)
 PROJECT NHPP-ITEP-BKZI(697)
 SECTION 2024-1052-N,C, SW, FL
 MCHENRY COUNTY
 CONTRACT NO. 62X94



Final Acceptance Documentation Checklist

| LOCATION | |
|---------------------------|---------------------------------|
| Route | Common Name |
| Limits | Section |
| Contract # | County |
| Controller Designation(s) | EMC Database Location Number(s) |

| ITEM | Contractor (Verify) | Resident Engineer (Verify) |
|---|--|--|
| Record Drawings -Three hardcopies (11" x 17") -Scanned to two CD-ROMs or USB | <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> |
| Field Inspection Tests -Voltage -Amperage -Cable Insulation Resistance -Continuity -Controller Ground Rod Resistance (Three Hardcopies & scanned to two CD's or USB) | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| GPS Coordinates -Excel file (Check Special Provisions, Excel file scanned to two CD's or USB) | <input type="checkbox"/> | <input type="checkbox"/> |
| Job Warranty Letter (Three Hardcopies & scanned to two CD's or USB) | <input type="checkbox"/> | <input type="checkbox"/> |
| Catalog Cut Submittals -Approved & Approved as Noted (Scanned to two CD's or USB) | <input type="checkbox"/> | <input type="checkbox"/> |
| Lighting Inventory Form (Three Hardcopies & scanned to two CD's or USB) | <input type="checkbox"/> | <input type="checkbox"/> |
| Lighting Controller Inventory Form (Three Hardcopies & scanned to two CD's or USB) | <input type="checkbox"/> | <input type="checkbox"/> |
| Light Tower Inspection Form (If applicable, Three Hardcopies & scanned to two CD's or USB) | <input type="checkbox"/> | <input type="checkbox"/> |

Three Hardcopies & scanned to two CD's or USB Drives shall be submitted for all items above.
The CD ROM shall be labeled as shown in the example contained herein.

General Notes:

Record Drawings – The record drawings should contain contract cover sheet, summary of quantities showing all lighting pay item sheets, proposed lighting plans and lighting detail sheets. Submit hardcopies shall be 11” x 17” size. Temporary lighting plans and removal lighting plans should not be part of the set.

Field Inspection Tests – Testing should be done for proposed cables. Testing shall be per standard specifications. Forms shall be neatly filled out.

GPS Coordinates – Check special provisions “General Electrical Requirements”. Submit electronic “EXCEL” file.

Job Warranty Letter – See standard specifications.

Cutsheet Submittal – See special provisions “General Electrical Requirements”. Scan Approved and Approved as Noted cutsheets.

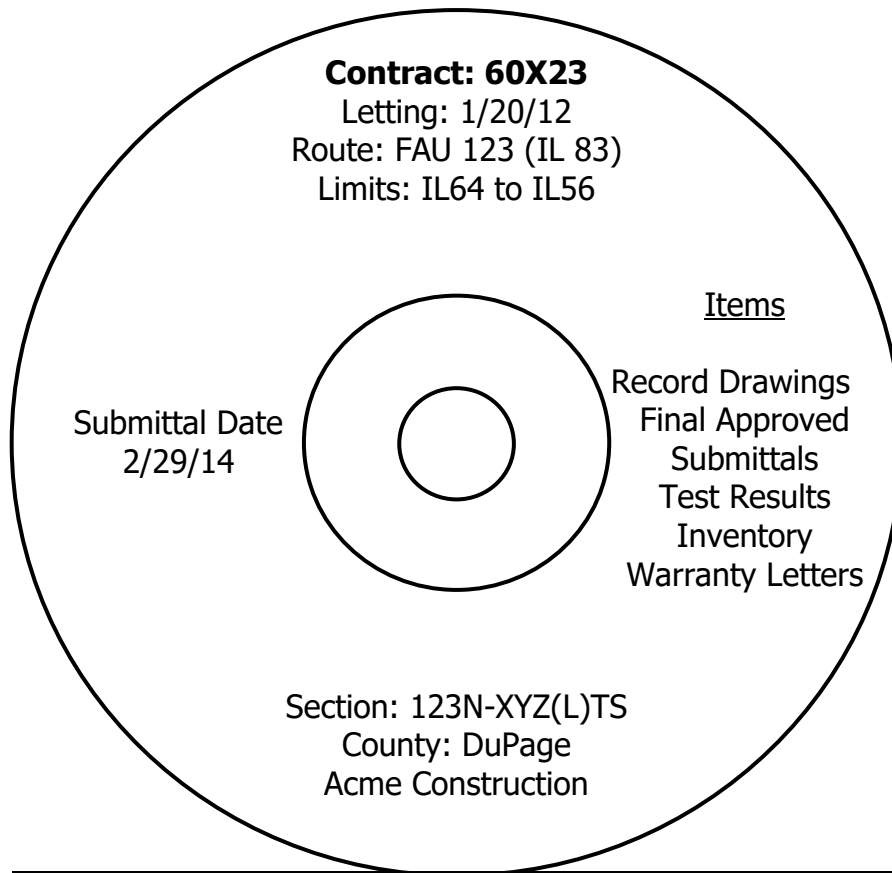
Lighting Inventory Form – Inventory form should include only proposed light poles, proposed light towers, proposed combination (traffic/light pole) lighting and proposed underpass luminaires.

Lighting Controller Inventory Form – Form should be filled out for only proposed lighting controllers.

Light Tower Safety Inspection Form – Form should be filled out for each proposed light tower.

CD LABEL FORMAT TEMPLATE.

Label must be printed; hand written labels are unacceptable and will be rejected.



MAINTENANCE OF LIGHTING SYSTEM

Effective: December 1, 2024

Replace Article 801.11 and 801.12 of the Standard Specifications with the following:

Effective the date the Contractor's activities (electrical or otherwise) at the job site begin, the Contractor shall be responsible for the proper operation and maintenance of all existing and proposed lighting systems which are part of, or which may be affected by the work until final acceptance or as otherwise determined by the Engineer.

Before performing any excavation, removal, or installation work (electrical or otherwise) at the site, the Contractor shall initiate a request for a maintenance transfer and preconstruction inspection, as specified elsewhere herein, to be held in the presence of the Engineer and a representative of the party or parties responsible for maintenance of any lighting systems which may be affected by the work. During the maintenance preconstruction inspection, the party responsible for existing maintenance shall perform testing of the existing system in accordance with Article 801.13a. The Contractor shall request a date for the preconstruction inspection no less than fourteen (14) days prior to the desired date of the inspection.

The Engineer will document all test results and note deficiencies. All substandard equipment will be repaired or replaced by the existing maintenance contractor, or the Engineer can direct the Contractor to make the necessary repairs under Section 109.04.

Existing lighting systems, when depicted on the plans, are intended only to indicate the general equipment installation of the systems involved and shall not be construed as an exact representation of the field conditions. It remains the Contractor's responsibility to visit the site to confirm and ascertain the exact condition of the electrical equipment and systems to be maintained. Contract documents shall indicate the circuit limits.

Maintenance of Existing Lighting Systems

Existing lighting systems. Existing lighting systems shall be defined as any lighting system or part of a lighting system in service at the time of contract Letting regardless of the number of lighting controllers involved. The contract drawings indicate the general extent of any existing lighting, but whether indicated or not, it remains the Contractor's responsibility to ascertain the extent of effort required for compliance with these specifications and failure to do so will not be justification for extra payment or reduced responsibilities.

Extent of Maintenance.

Partial Maintenance. Unless otherwise indicated, if the number of circuits affected by the contract is equal to or less than 40% of the total number of circuits in each controller and the controller is not part of the contract work, the Contractor needs only to maintain the affected circuits within the project limits. The project limits are defined as those limits indicated in the contract plans. Equipment outside of the project limits, on the affected circuits shall be maintained and paid for under Article 109.04. The affected circuits shall be isolated by means of in line waterproof fuse holders as specified elsewhere and as approved by the Engineer. The unaffected circuits and the controller will remain under the maintenance of the State.

Full Maintenance. If the number of circuits affected by the contract is greater than 40% of the total number of circuits in each controller, or if the controller is modified in any way under the contract work, the Contractor shall maintain the entire controller and all associated circuits within the project limits. Equipment outside of the project limits shall be maintained and paid for under Article 109.04.

If the existing equipment is damaged by normal vehicular traffic, not contractor operations, is beyond repair and cannot be re-set, the contractor shall replace the equipment in kind with payment made for such equipment under Article 109.04. If the equipment damaged by any construction operations, not normal vehicular traffic, is beyond repair and cannot be re-set, the contractor shall replace the equipment in kind and the cost of the equipment shall be included in the cost of this pay item and shall not be paid for separately.

Maintenance of Proposed Lighting Systems

Proposed Lighting Systems. Proposed lighting systems shall be defined as any lighting system or part of a lighting system, temporary or permanent, which is to be constructed under this contract regardless of the project limits indicated in the plans.

The Contractor shall be fully responsible for maintenance of all items installed under this contract. Maintenance shall include, but not be limited to, any equipment failures or malfunctions as well as equipment damage either by the motoring public, Contractor operations, vandalism, or other means. The potential cost of replacing or repairing any malfunctioning, damaged, or vandalized equipment shall be included in the bid price of this item and will not be paid for separately.

The Contractor shall be responsible for locating cables installed under this contract to prevent damage from construction operations.

Lighting System Maintenance Operations

The Contractor's responsibility shall include all applicable responsibilities of the Electrical Maintenance Contract, State of Illinois, Department of Transportation, Division of Highways, District One. These responsibilities shall include the maintenance of lighting units (including sign lighting), cable runs and lighting controls. Responsibilities shall also include the coordination and installation of replacement equipment for existing equipment which has failed within the warranty period for that equipment. The coordination shall include correspondence with the manufacturer regarding the warranty claim. In the case of a pole knockdown or sign light damage, the Contractor shall promptly clear the lighting unit and circuit discontinuity and restore the system to service. The equipment shall then be re-set by the contractor within the time limits specified herein.

If the existing equipment is damaged by normal vehicular traffic, not contractor operations, is beyond repair and cannot be re-set, the contractor shall replace the equipment in kind with payment made for such equipment under Article 109.04. If the equipment damaged by any construction operations, not normal vehicular traffic, is beyond repair and cannot be re-set, the contractor shall replace the equipment in kind and the cost of the equipment shall be included in the cost of this pay item and shall not be paid for separately.

Responsibilities shall also include weekly night time patrol of the lighting system, with patrol reports filed immediately with the Engineer and with deficiencies corrected within 24 hours of the patrol. Patrol reports shall be presented on standard forms as designated by the Engineer. Uncorrected deficiencies may be designated by the Engineer as necessitating emergency repairs as described elsewhere herein.

The following chart lists the maximum response, service restoration, and permanent repair time the Contractor will be allowed to perform corrective action on specific lighting system equipment.

| INCIDENT OR PROBLEM | SERVICE RESPONSE TIME | SERVICE RESTORATION TIME | PERMANENT REPAIR TIME |
|---|-----------------------|--------------------------|-----------------------|
| Control cabinet out | 1 hour | 4 hours | 7 Calendar days |
| Hanging mast arm | 1 hour to clear | na | 7 Calendar days |
| Radio problem | 1 hour | 4 hours | 7 Calendar days |
| Motorist caused damage or leaning light pole 10 degrees or more | 1 hour to clear | 4 hours | 7 Calendar days |
| Circuit out – Needs to reset breaker | 1 hour | 4 hours | na |
| Circuit out – Cable trouble | 1 hour | 24 hours | 21 Calendar days |
| Outage of 3 or more successive lights | 1 hour | 4 hours | na |
| Outage of 75% of lights on one tower | 1 hour | 4 hours | na |
| Outage of light nearest RR crossing approach, Islands and gores | 1 hour | 4 hours | na |
| Outage (single or multiple) found on night outage survey or reported to EMC | na | na | 7 Calendar days |
| Navigation light outage | na | na | 24 hours |

- **Service Response Time** -- amount of time from the initial notification to the Contractor until a patrolman physically arrives at the location.
- **Service Restoration Time** – amount of time from the initial notification to the Contractor until the time the system is fully operational again (In cases of motorist caused damage the undamaged portions of the system are operational.)
- **Permanent Repair Time** – amount of time from initial notification to the Contractor until the time permanent repairs are made if the Contractor was required to make temporary repairs to meet the service restoration requirement.

Failure to provide this service will result in liquidated damages of \$500 per day per occurrence. In addition, the Department reserves the right to assign any work not completed within this timeframe to the Electrical Maintenance Contractor. All costs associated to repair this uncompleted work shall be the responsibility of the Contractor. Failure to pay these costs to the Electrical Maintenance Contractor within one month after the incident will result in additional liquidated damages of \$500 per month per occurrence. Unpaid bills will be deducted from any monies owed to the Contractor. Repeated failures and/or a gross failure of maintenance shall result in the State's Electrical Maintenance Contractor being directed to correct all deficiencies and the resulting costs deducted from any monies owed the contractor.

Damage caused by the Contractor's operations shall be repaired at no additional cost to the Contract.

Operation of Lighting

The lighting shall be operational every night, dusk to dawn. Duplicate lighting systems (such as temporary lighting and proposed new lighting) shall not be operated simultaneously. Lighting systems shall not be kept in operation during long daytime periods.

Method of Measurement

The contractor shall demonstrate to the satisfaction of the Engineer that the lighting system is fully operational prior to submitting a pay request. Failure to do so will be grounds for denying the pay request. Months in which the lighting systems are not maintained and not operational will not be paid. Payment shall not be made retroactively for months in which lighting systems were not operational.

Basis of Payment. Maintenance of lighting systems shall be paid for at the contract unit price per CALENDAR MONTH for **MAINTENANCE OF LIGHTING SYSTEM.**

LUMINAIRE SAFETY CABLE ASSEMBLY

Effective: January 1, 2012

Description: This item shall consist of providing a luminaire safety cable assembly as specified herein and as indicated in the plans.

Materials. Materials shall be according to the following:

Wire Rope. Cables (wire rope) shall be manufactured from Type 304 or Type 316 stainless steel having a maximum carbon content of 0.08 % and shall be a stranded assembly. Cables shall be 3.18 mm (0.125") diameter, 7x19 Class strand core and shall have no strand joints or strand splices.

Cables shall be manufactured and listed for compliance with Federal Specification RR-W-410 and Mil-DTL-83420.

Cable terminals shall be stainless steel compatible with the cable and as recommended by the cable manufacturer. Terminations and clips shall be the same stainless steel grade as the wire rope they are connected to.

U-Bolts. U-Bolts and associated nuts, lock washers, and mounting plates shall be manufactured from Type 304 or Type 316 stainless steel.

CONSTRUCTION REQUIREMENTS

General. The safety cable assembly shall be installed as indicated in the plan details. One end of the cable assembly shall have a loop fabricated from a stainless steel compression sleeve. The other end of the cable assembly shall be connected with stainless steel wire rope clips as indicated. Slack shall be kept to a minimum to prevent the luminaire from creeping off the end of the mast arm. Unless otherwise indicated in the plans, the luminaire safety cable shall only be used in conjunction with luminaires which are directly above the traveled pavement.

Basis of Payment: This work shall be paid for at the contract price EACH for **LUMINAIRE SAFETY CABLE ASSEMBLY**, which shall be payment for the work as described herein and as indicated in the plans.

EXPOSED RACEWAYS

Effective: January 1, 2012

Revise the first paragraph of Article 811.03(a) of the Standard Specifications to read:

“General. Rigid metal conduit installation shall be according to Article 810.05(a). Conduits terminating in junction and pull boxes shall be terminated with insulated and gasketed watertight threaded NEMA 4X conduit hubs. The hubs shall be Listed under UL 514B. The insulated throat shall be rated up to 105° C. When PVC coated conduit is utilized, the aforementioned hubs shall also be PVC coated.”

Add the following to Article 811.03(b) of the Standard Specifications:

“Where PVC coated conduit is utilized, all conduit fittings, couplings and clamps shall be PVC coated. All other mounting hardware and appurtenances shall be stainless steel.”

“The personnel installing the PVC coated conduit must be trained and certified by the PVC coated conduit Manufacturer or Manufacturer’s representative to install PVC coated conduit. Documentation demonstrating this requirement must be submitted for review and approval.”

Add the following to Article 1088.01(a) of the Standard Specifications:

All iron and steel products, which are to be incorporated into the work, including conduit and all conduit fittings, shall be domestically manufactured or produced and fabricated as specified in Article 106.”

Revise Article 1088.01(a)(3) of the Standard Specifications to read:

- “a. PVC Coated Steel Conduit. The PVC coated rigid metal conduit shall be UL Listed (UL 6). The PVC coating must have been investigated by UL as providing the primary corrosion protection for the rigid metal conduit. Ferrous fittings for general service locations shall be UL Listed with PVC as the primary corrosion protection. Hazardous location fittings, prior to plastic coating shall be UL listed.
- b. The PVC coating shall have the following characteristics:

| | |
|----------------------|---|
| Hardness: | 85+ Shore A Durometer |
| Dielectric Strength: | 400V/mil @ 60 Hz |
| Aging: | 1,000 Hours Atlas Weatherometer |
| Temperature | The PVC compound shall conform at 0° F. to Federal Specifications PL-406b, Method 2051, Amendment 1 of 25 September 1952 (ASTM D 746) |
| Elongation: | 200% |

- c. The exterior and interior galvanized conduit surface shall be chemically treated to enhance PVC coating adhesion and shall also be coated with a primer before the PVC coating to ensure a bond between the zinc substrate and the PVC coating. The bond strength created shall be greater than the tensile strength of the plastic coating.
- d. The nominal thickness of the PVC coating shall be 1 mm (40 mils). The PVC exterior and urethane interior coatings applied to the conduit shall afford sufficient flexibility to permit field bending without cracking or flaking at temperatures above -1°C (30°F).
- e. An interior urethane coating shall be uniformly and consistently applied to the interior of all conduit and fittings. This internal coating shall be a nominal 2 mil thickness. The interior coating shall be applied in a manner so there are no runs, drips, or pinholes at any point. The coating shall not peel, flake, or chip off after a cut is made in the conduit or a scratch is made in the coating.
- f. Conduit bodies shall have a tongue-in-groove gasket for maximum sealing capability. The design shall incorporate a positive placement feature to assure proper installation. Certified test results confirming seal performance at 15 psig (positive) and 25 in. of mercury (vacuum) for 72 hours shall be submitted for review when requested by the Engineer.
- g. The PVC conduit shall pass the following tests:

Exterior PVC Bond test RN1:

Two parallel cuts 13 mm (1/2 inch) apart and 40 mm (1 1/2 inches) in length shall be made with a sharp knife along the longitudinal axis. A third cut shall be made perpendicular to and crossing the longitudinal cuts at one end. The knife shall then be worked under the PVC coating for 13 mm (1/2 inch) to free the coating from the metal.

Using pliers, the freed PVC tab shall be pulled with a force applied vertically and away from the conduit. The PVC tab shall tear rather than cause any additional PVC coating to separate from the substrate.

Boil Test:

Acceptable conduit coating bonds (exterior and interior) shall be confirmed if there is no disbondment after a minimum average of 200 hours in boiling water or exposure to steam vapor at one atmosphere. Certified test results from a national recognized independent testing laboratory shall be submitted for review and approval. The RN1 Bond Test and the Standard Method for Measuring Adhesion by Tape Test shall be utilized.

Exterior Adhesion. In accordance with ASTM D870, a 6" length of conduit test specimen shall be placed in boiling water. The specimen shall be periodically removed, cooled to ambient temperature and immediately tested according to the bond test (RN1). When the PVC coating separates from the substrate, the boil time to failure in hours shall be recorded.

Interior Adhesion. In accordance with ASTM D3359, a 6" conduit test specimen shall be cut in half longitudinally and placed in boiling water or directly above boiling water with the urethane surface facing down. The specimen shall be periodically removed, cooled to ambient temperature and tested in accordance with the Standard Method of Adhesion by Tape Test (ASTM D3359). When the coating disbonds, the time to failure in hours shall be recorded.

Heat/Humidity Test:

Acceptable conduit coating bonds shall be confirmed by a minimum average of 30 days in the Heat and Humidity Test. The RN1 Bond Test and the Standard Method for Measuring Adhesion by Tape Test shall be utilized.

Exterior Adhesion. In accordance with ASTM D1151, D1735, D2247 and D4585, conduit specimens shall be placed in a heat and humidity environment where the temperature is maintained at 150°F (66°C) and 95% relative humidity. The specimens shall be periodically removed and a bond test (RN1) performed. When the PVC coating separates from the substrate, the exposure time to failure in days shall be recorded.

Interior Adhesion. In accordance with ASTM D3359, conduit specimens shall be placed in a heat and humidity environment where the temperature is maintained at 150°F (66°C) and 95% relative humidity. When the coating disbonds, the time to failure in hours shall be recorded.

Add the following to Article 1088.01(a)(4) of the Standard Specifications:

"All liquid tight flexible metal conduit fittings shall have an insulated throat to prevent abrasion of the conductors and shall have a captive sealing O-ring gasket.

The fittings shall be Listed under UL 514B. The insulated throat shall be rated up to 105° C.”

Revise the second paragraph of Article 811.04 of the Standard Specifications to read:

“Expansion fittings and LFNC will not be measured for payment.”

Revise Article 811.05 of the Standard Specifications to read:

“811.05 Basis of Payment. This work will be paid for at the contract unit price per FOOT for **CONDUIT ATTACHED TO STRUCTURE**, of the diameter specified, **RIGID GALVANIZED STEEL** or **CONDUIT ATTACHED TO STRUCTURE**, of the diameter specified, **RIGID GALVANIZED STEEL, PVC COATED.**”

ELECTRIC UTILITY SERVICE CONNECTION (COMED)

Effective: January 1, 2012

Description. This item shall consist of payment for work performed by ComEd in providing or modifying electric service as indicated. THIS MAY INVOLVE WORK AT MORE THAN ONE ELECTRIC SERVICE. For summary of the Electrical Service Drop Locations see the schedule contained elsewhere herein.

CONSTRUCTION REQUIREMENTS

General. It shall be the Contractor's responsibility to contact ComEd. The Contractor shall coordinate his work fully with the ComEd both as to the work required and the timing of the installation. No additional compensation will be granted under this or any other item for extra work caused by failure to meet this requirement. **Please contact ComEd, New Business Center Call Center, at 866 NEW ELECTRIC (1-866-639-3532) to begin the service connection process. The Call Center Representatives will create a work order for the service connection. The representative will ask the requestor for information specific to the request. The representative will assign the request based upon the location of project.**

The Contractor should make particular note of the need for the earliest attention to arrangements with ComEd for service. In the event of delay by ComEd, no extension of time will be considered applicable for the delay unless the Contractor can produce written evidence of a request for electric service within 30 days of execution.

Method Of Payment. The Contractor will be reimbursed to the exact amount of money as billed by ComEd for its services. Work provided by the Contractor for electric service will be paid separately as described under ELECTRIC SERVICE INSTALLATION. No extra compensation shall be paid to the Contractor for any incidental materials and labor required to fulfill the requirements as shown on the plans and specified herein.

For bidding purposes, this item shall be estimated as \$8,000.00.

Basis Of Payment. This work will be paid for at the contract price per LUMP SUM for **ELECTRIC UTILITY SERVICE CONNECTION** which shall be reimbursement in full for electric utility service charges.

ELECTRIC SERVICE INSTALLATION

Effective: January 1, 2012

Description. This item shall consist of all material and labor required to extend, connect or modify the electric services, as indicated or specified, which is over and above the work performed by the utility. Unless otherwise indicated, the cost for the utility work, if any, will be reimbursed to the Contractor separately under ELECTRIC UTILITY SERVICE CONNECTION. This item may apply to the work at more than one service location and each will be paid separately.

Materials. Materials shall be in accordance with the Standard Specifications.

CONSTRUCTION REQUIREMENTS

General. The Contractor shall ascertain the work being provided by the electric utility and shall provide all additional material and work not included by other contract pay items required to complete the electric service work in complete compliance with the requirements of the utility.

No additional compensation will be allowed for work required for the electric service, even though not explicitly shown on the Drawings or specified herein

Method Of Measurement. Electric Service Installation shall be counted, each.

Basis Of Payment. This work will be paid for at the contract unit price EACH for **ELECTRIC SERVICE INSTALLATION** which shall be payment in full for the work specified herein.

COMBINATION LIGHTING CONTROLLER

Effective: February 1, 2015

Revised: May 5, 2022

Description

This item shall consist of furnishing and installing a combination lighting controller complete with the panel assembly indicated on the drawings and wiring for the control of highway lighting as specified herein, shown on the Contract Drawings and as directed by the Engineer.

Materials

Photo control. The photocell shall be in accordance with Article 1068.01(e)(2) except that the size of the photocell shall allow mounting under the cabinet roof overhang.

Overcurrent Protection. Circuit breakers shall be 30A unless otherwise indicated. Circuit breakers shall be standard listed molded case, thermal-magnetic bolt-on type circuit breakers with trip free indicating handles. 120 V circuit breakers shall have a listed interrupting rating of not less than 10,000 rms symmetrical amperes at rated circuit voltage for which the breaker is applied.

Contactor. The contactor shall be a 30A, 2-Pole, 120VAC@60Hz electrically held contactor.

Hand-Off-Auto switch. 30mm. 3 position selector switch.

Panel Assembly. Threaded brass inserts shall be provided for the non-conductive inner mounting panel.

CONSTRUCTION REQUIREMENTS

General

This item shall be constructed in full accord with Section 825 of the Standard Specifications and the details as indicated in the Contract Drawings.

Basis of Payment

This work shall be paid for at the contract unit price EACH for COMBINATION LIGHTING CONTROLLER which price shall be payment in full for furnishing, installing, shipping, handling, tools and appurtenances necessary for a complete and operational unit as indicated on the drawings and as approved by the Engineer.

TEMPORARY LIGHTING CONTROLLER

Effective: February 1, 2015

Description

This item shall consist of furnishing and installing a temporary lighting controller complete with the enclosure at location indicated on the drawings and wiring for the control of highway lighting as specified herein, shown on the Contract Drawings and as directed by the Engineer, in accordance with the Standard Specifications for Road and Bridge Construction adopted January 1, 2022, as applicable and except as specified within.

Materials

Materials shall be according to Article/Section 1068.01.

CONSTRUCTION REQUIREMENTS

General

This item shall be constructed in full accord with Section 825 of the Standard Specifications and the details as indicated in the Contract Drawings.

The controller shall be attached to wood pole with a wooden plank beneath the controller.

Basis of Payment

This work shall be paid for at the contract unit price per EACH for TEMPORARY LIGHTING CONTROLLER, which price shall be payment in full for furnishing, installing, shipping, handling, tools and appurtenances necessary for a complete and operational unit as indicated on the drawings and as approved by the Engineer.

ROADWAY LUMINAIRE, LED

Effective: April 1, 2024

Description.

This work shall consist of furnishing and installing a roadway LED luminaire as shown on the plans, as specified herein.

General.

The luminaire including the housing, driver and optical assembly shall be assembled in the U.S.A. The luminaire shall be assembled by and manufactured by the same manufacturer. The luminaire shall be mechanically strong and easy to maintain. The size, weight, and shape of the luminaire shall be designed so as not to incite detrimental vibrations in its respective pole and it shall be compatible with the pole and arm. All electrical and electronic components of the luminaire shall comply with the requirements of Restriction of Hazardous Materials (RoHS) regulations. The luminaire shall be listed for wet locations by an NRTL and shall meet the requirements of UL 1598 and UL 8750

Submittal Requirements.

The Contractor shall also submit the following manufacturer's product data for each type of luminaire:

1. Descriptive literature and catalogue cuts for luminaire, LED driver, and surge protection device. Completed manufacturer's luminaire ordering form with the full catalog number provided
2. LED drive current, total luminaire input wattage and total luminaire current at the system operating voltage or voltage range and ambient temperature of 25 C.
3. LED efficacy per luminaire expressed in lumens per watt (l/w).
4. Initial delivered lumens at the specified color temperature, drive current, and ambient temperature.
5. IES file associated with each submitted luminaire in the IES LM-63 format.

6. Computer photometric calculation reports as specified and in the luminaire performance table.
7. TM-15 BUG rating report.
8. Isofootcandle chart with max candela point and half candela trace indicated.
9. Documentation of manufacturers experience and verification that luminaires were assembled in the U.S.A. as specified.
10. Written warranty.

Upon request by the Engineer, the submittals shall also include any or all the following:

- a. TM-21 calculator spreadsheet (XLSX or PDF format) and if available, TM-28 report for the specified luminaire or luminaire family. Both reports shall be for 50,000 hours at an ambient temperature of 77 °F (25 °C).
- b. LM-79 report with National Voluntary Laboratory Accreditation Program (NVLAP) current at the time of testing in PDF format inclusive of the following: isofootcandle diagram with half candela contour and maximum candela point; polar plots through maximum plane and maximum cone; coefficient of utilization graph; candela table; and spectral distribution graph and chromaticity diagram.
- c. LM-80 report for the specified LED package in PDF format and if available, LM-84 report for the specified luminaire or luminaire family in PDF format. Both reports shall be conducted by a laboratory with NVLAP certification current at the time of testing.
- d. AGi32 calculation file matching the submittal package.
- e. In Situ Temperature Measurement Test (ISTMT) report for the specified luminaire or luminaire family in PDF format.
- f. Vibration test report in accordance with ANSI C136.31 in PDF format.
- g. ASTM B117/ASTM D1654 (neutral salt spray) test and sample evaluation report in PDF format.
- h. ASTM G154 (ASTM D523) gloss test report in PDF format.
- i. LED drive current, total luminaire input wattage, and current over the operating voltage range at an ambient temperature of 77 °F (25 °C).
- j. Power factor (pf) and total harmonic distortion (THD) at maximum and minimum supply and at nominal voltage for the dimmed states of 70%, 50%, and 30% full power.
- k. Ingress protection (IP) test reports, conducted according to ANSI C136.25 requirements, for the driver and optical assembly in PDF format.

- l. Installation, maintenance, and cleaning instructions in PDF format, including recommendations on periodic cleaning methods.
- m. Documentation in PDF format that the reporting laboratory is certified to perform the required tests.

A sample luminaire shall also be provided upon request of the Engineer. The sample shall be as proposed for the contract and shall be delivered by the Contractor to the District Headquarters. After review, the Contractor shall retrieve the luminaire.

Manufacturer Experience.

The luminaire shall be designed to be incorporated into a lighting system with an expected 20 year lifetime. The luminaire manufacturer shall have a minimum of 15 years' experience manufacturing LED roadway luminaires; parking lot, architectural, or residential luminaires are not applicable to this requirement. The manufacturer shall have a minimum of 100,000 total LED roadway luminaires installed on a minimum of 100 separate installations, all within the U.S.A.

Housing.

Material. The luminaire shall be a single device not requiring onsite assembly for installation. The driver for the luminaire shall be integral to the unit.

Finish. The luminaire shall have a baked acrylic enamel finish. The color of the finish shall be gray, unless otherwise indicated.

The finish shall have a rating of six or greater according to ASTM D1654, Section 8.0 Procedure A – Evaluation of Rust Creepage for Scribed Samples after exposure to 1000 hours of testing according to ASTM B117 for painted or finished surfaces under environmental exposure.

The luminaire finish shall have less than or equal to 30% reduction of gloss according to ASTM D523 after exposure of 500 hours to ASTM G154 Cycle 6 QUV® accelerated weathering testing.

The luminaire shall slip-fit on a mounting arm with a 2" diameter tenon (2.375" outer diameter), and shall have a barrier to limit the amount of insertion. The slip fitter clamp shall utilize four (4) bolts to clamp to the tenon arm. The luminaire shall be provided with a leveling surface and shall be capable of being tilted ± 5 degrees from the axis of attachment in 2.5 degree increments and rotated to any degree with respect to the supporting arm.

All external surfaces shall be cleaned in accordance with the manufacturer's recommendations and be constructed in such a way as to discourage the accumulation of water, ice, and debris.

The effective projected area of the luminaire shall not exceed 1.6 sq. ft.

The total weight including accessories, shall not exceed 40 lb (18.14 kg).

A passive cooling method with no moving, rotating parts, or liquids shall be employed for heat management.

The luminaire shall include a fully prewired, 7-pin twist lock ANSI C136.41-compliant receptacle. Unused pins shall be connected as directed by the Manufacturer and as approved by the Engineer. A shorting cap shall be provided with the luminaire that is compliant with ANSI C136.10.

Vibration Testing. All luminaires shall be subjected to and pass vibration testing requirements at "3G" minimum zero to peak acceleration in accordance with ANSI C136.31 requirements using the same luminaire. To be accepted, the luminaire housing, hardware, and each individual component shall pass this test with no noticeable damage and the luminaire must remain fully operational after testing.

Labels. An internal label shall be provided indicating the luminaire is suitable for wet locations and indicating the luminaire is an NRTL listed product to UL1598 and UL8750. The internal label shall also comply with the requirements of ANSI C136.22.

An external label consisting of two black characters on a white background with the dimensions of the label and the characters as specified in ANSI C136.15 for HPS luminaires. The first character shall be the alphabetical character representing the initial lumen output as specified in Table 1 of Article 1067.06(c). The second character shall be the numerical character representing the transverse light distribution type as specified in IES RP-8 (i.e. Types 1, 2, 3, 4, or 5).

Hardware. All hardware shall be stainless steel or of other corrosion resistant material approved by the Engineer.

Luminaires shall be designed to be easily serviced, having fasteners such as quarter-turn clips of the heavy spring-loaded type with large, deep straight slot heads, complete with a receptacle and shall be according to military specification MIL-f-5591.

All hardware shall be captive and not susceptible to falling from the luminaire during maintenance operations. This shall include lens/lens frame fasteners as well hardware holding the removable driver and electronic components in place.

Provisions for any future house-side external or internal shielding should be indicated along with means of attachment.

Circuiting shall be designed to minimize the impact of individual LED failures on the operation of the other LED's.

Wiring. Wiring within the electrical enclosure shall be rated at 600v, 105°C or higher.

Driver.

The driver shall be integral to the luminaire shall be capable of receiving an indefinite open and short circuit output conditions without damage.

The driver shall incorporate the use of thermal foldback circuitry to reduce output current under abnormal driver case temperature conditions and shall be rated for a lifetime of 100,000 hours at an ambient temperature exposure of 77 °F (25 °C) to the luminaire. If the driver has a thermal shut down feature, it shall not turn off the LEDs when operated at 104 °F (40 °C) or less.

The driver shall have an input voltage range of 120 to 277 volts ($\pm 10\%$) or 347 to 480 volts ($\pm 10\%$) according to the contract documents. When the driver is operating within the rated input voltage range and in an un-dimmed state, the power factor measurement shall be not less than 0.9 and the THD measurement shall be no greater than 20%.

The driver shall meet the requirements of the FCC Rules and Regulations, Title 47, Part 15 for Class A devices with regard to electromagnetic compatibility. This shall be confirmed through the testing methods in accordance with ANSI C63.4 for electromagnetic interference.

The driver shall be dimmable using the protocol listed in the Luminaire Performance Table shown in the contract.

Surge Protection. The luminaire shall comply the requirements of ANSI C136.2 for electrical transient immunity at the "Extreme" level (20KV/10KA) and shall be equipped with a surge protective device (SPD) that is UL1449 compliant with indicator light. An SPD failure shall open the circuit to protect the driver.

LED Optical Assembly

The optical assembly shall have an IP 65 or higher rating in accordance with ANSI C136.25. The circuiting of the LED array shall be designed to minimize the effect of individual LED failures on the operation of other LEDs. All optical components shall be made of glass or a UV stabilized, non-yellowing material.

The optical assembly shall utilize high brightness, long life, minimum 70 CRI, 4,000K color temperature ($\pm 300K$) LEDs binned in accordance with ANSI C78.377. Lenses shall be UV-stabilized acrylic or glass.

Lumen depreciation at 50,000 hours of operation shall not exceed 15% of initial lumen output at the specified LED drive current and an ambient temperature of 25° C.

The luminaire may or may not have a glass lens over the LED modules. If a glass lens is used, it must be a flat lens. Material other than glass will not be acceptable. If a glass lens is not used, the LED modules may not protrude lower than the luminaire housing.

The assembly shall have individual serial numbers or other means for manufacturer tracking.

Photometric Performance.

Luminaires shall be tested according to IESNA LM-79. This testing shall be performed by a test laboratory holding accreditation from the National Institute of Standards and Technology (NIST) National Voluntary Laboratory Accreditation Program (NVLAP) for the IESNA LM-79 test procedure.

Data reports as a minimum shall yield an isofootcandle chart, with max candela point and half candela trace indicated, maximum plane and maximum cone plots of candela, a candlepower table (house and street side), a coefficient of utilization chart, a luminous flux distribution table, spectral distribution plots, chromaticity plots, and other standard report outputs of the above mentioned tests.

The luminaire shall have a BUG rating of Back Light B3 or less, Up Light rating of U0, and a Glare rating of G3 or less unless otherwise indicated in the luminaire performance table.

Photometric Calculations.

Calculations. Submitted report shall include a luminaire classification system graph with both the recorded lumen value and percent lumens by zone along with the BUG rating according to IESNA TM-15.

Complete point-by-point luminance and veiling luminance calculations as well as listings of all indicated averages and ratios as applicable shall be provided in accordance with IESNA RP-8 recommendations. Lighting calculations shall be performed using AGi32 software with all luminance calculations performed to one decimal place (i.e. x.x cd/m²). Uniformity ratios shall also be calculated to one decimal place (i.e. x.x:1). Calculation results shall demonstrate that the submitted luminaire meets the lighting metrics specified in the project Luminaire Performance Table(s). Values shall be rounded to the number of significant digits indicated in the luminaire performance table(s).

All photometry must be **photopic**. Scotopic or mesopic factors will not be allowed. The AGi32 file shall be submitted at the request of the Engineer.

**IDOT DISTRICT 1 LUMINAIRE PERFORMANCE TABLE
 ROADWAY LIGHTING**

GIVEN CONDITIONS

| | | | |
|------------------|-------------------------------------|-----------------|-----|
| Roadway Data | Pavement Width | _____ | Ft |
| | Number of Lanes Left of Median | _____ | |
| | Number of Lanes Right of Median | _____ | |
| | Lane Width | _____ | Ft |
| | Median Width | _____ | Ft |
| | IES Surface Classification | R3 | |
| | Q-Zero Value | 0.07 | |
| Mounting Data | Mounting Height | _____ | Ft |
| | Mast Arm Length | _____ | Ft |
| | Pole Set-Back from Edge of Pavement | _____ | Ft |
| Luminaire Data | Source | LED | |
| | Color Temperature | 4000 | °K |
| | Lumens | _____ | Min |
| | Pay Item Lumen Designation | Choose an item. | |
| | BUG Rating | _____ | |
| | IES Vertical Distribution | _____ | |
| | IES Control of Distribution | _____ | |
| | IES Lateral Distribution | _____ | |
| Pole Layout Data | Total Light Loss Factor | 0.75 | |
| | Spacing | _____ | Ft |
| | Configuration | Choose an item. | |
| | Luminaire Overhang over E.O.P. | _____ | Ft |

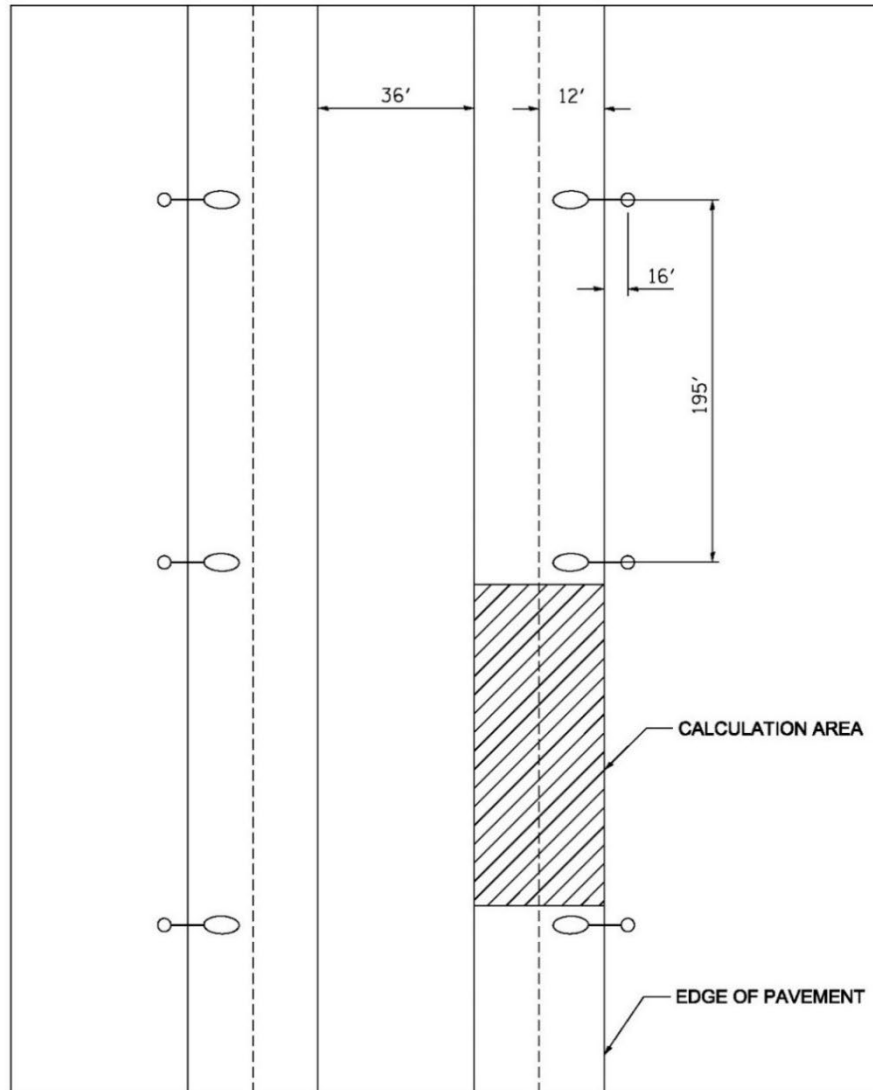
NOTE: Variations from the above specified I.E.S. distribution pattern may be requested, and acceptance of variations will be subject to review by the Engineer based on how well the performance requirements are met.

PERFORMANCE REQUIREMENTS

NOTE: These performance requirements shall be the minimum acceptable standards of photometric performance for the luminaire, based on the given conditions listed above.

| | | | |
|----------------------|--|-------|-------------------|
| Roadway Luminance | Average Luminance, L_{AVE} (Max) | _____ | Cd/m ² |
| | Average Luminance, L_{AVE} (Min) | _____ | Cd/m ² |
| | Uniformity Ratio, L_{AVE}/L_{MIN} | _____ | Max |
| | Uniformity Ratio, L_{MAX}/L_{MIN} | _____ | Max |
| | Veiling Luminance Ratio, L_V/L_{AVE} | _____ | Max |

US-14 Straight Section



Independent Testing

When a contract has 50 or more luminaires of the same type (distribution type and lumen output/wattage), that luminaire type shall be independently tested, unless otherwise noted. The quantity of luminaires to be tested shall be as specified in the following table.

| Contract Quantity | Luminaires to be Tested |
|--------------------------|--------------------------------|
| 1-49 | 0 (unless otherwise noted) |
| 50-100 | 2 |
| 101-150 | 3 |
| 151-200 | 4 |
| 201-250 | 5 |
| 251-300 | 6 |
| 301-350 | 7 |

The Contractor shall coordinate the testing with the contract schedule considering submittal, manufacturing, testing, and installation lead-times and deadlines.

The Electrical Engineer shall select from all the project luminaires at the Contractor's or distributor's storage facility, within District 1, the luminaires for testing. In all cases, the selection of luminaires shall be a random selection from the entire completed lot of luminaires required for the contract. Selections from partial lots will not be allowed. An additional luminaire shall also be selected for physical inspection by the Engineer at the District Headquarters. This luminaire will be available for the Contractor to pick up at a later date to be installed under this contract. This luminaire is in addition to the luminaire required as a part of the submittal process specified elsewhere.

Alternative selection process. With the Engineer's prior approval, the Contractor shall provide a list of luminaire serial numbers for all the luminaires. The Engineer shall make a random selection of the required number of luminaires for testing from the serial numbers. That luminaire must then be photographed clearly showing the serial number prior to shipment to the selected and approved testing laboratory. The testing laboratory shall include a photograph of the luminaire along with the test results directly to the Engineer.

Luminaires shall be tested at a National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory approved for each of the required tests. The testing facility shall not be associated in any way, subsidiary or otherwise, with the luminaire manufacturer. All costs associated with luminaire testing shall be included in the bid price of the luminaire.

The selection of the proposed independent laboratory shall be presented with the information submitted for review and approval.

The testing performed shall include photometric and electrical testing.

All tests shall be conducted at the luminaire system operating voltage of 240 volts unless specified differently in the contract plans.

Photometric testing shall be according to IES recommendations, performed with a goniophotometer and as a minimum, shall yield an isofootcandle chart, with max candela point and half candela trace indicated, an isocandela diagram, maximum planned and maximum cone plots of candela, a candlepower table (House and street side), a coefficient of utilization chart, a luminous flux distribution table, BUG rating report, and complete calculations based on specified requirements and test results.

Electrical testing shall conform to NEMA and ANSI standards and, as a minimum shall include a complete check of wiring connections and a table of characteristics showing input amperes, watts, power factor, total harmonic distortion and LED drive current.

The summary report and the test results including IES photometric files shall be sent directly to the Resident Engineer, the Electrical Engineer, and the Contractor via email or other mutually agreeable means.

Photometric performance shall meet or exceed that of the specified values. If the luminaire does not meet the specified photometric values, the luminaire has failed regardless of whether the test results meet the submitted factory data.

Should any of the tested luminaires of a given type, and distribution fail to satisfy the specifications and perform according to approved submittal information, the luminaire type of that distribution type and wattage shall be unacceptable and be replaced by alternate equipment meeting the specifications with the submittal and testing process repeated in their entirety; or corrections made to achieve required performance.

In the case of corrections, the Contractor shall advise the Engineer of the proposed corrections and shall request a repeat of the specified testing and, if the corrections are deemed reasonable by the Engineer, the testing process shall be repeated in its entirety.

The number of luminaires to be tested shall be the same quantity as originally tested as required in the above table.

Retesting, should it become necessary, shall not be grounds for additional compensation or extension of time.

Submittal information shall include a statement of intent to provide the testing as well as a request for approval of the chosen laboratory.

Installation.

Each luminaire shall be installed according to the luminaire manufacturer's recommendations.

Luminaires which are pole mounted shall be mounted on site such that poles and arms are not left unloaded. Pole mounted luminaires shall be leveled/adjusted after poles are set and vertically aligned before being energized. When mounted on a tenon, care shall be exercised to assure maximum insertion of the mounting tenon. Each luminaire shall be checked to assure compatibility with the project power system. When the night-time check of the lighting system by the Engineer indicates that any luminaires are mis-aligned, the mis-aligned luminaires shall be corrected at no additional cost.

No luminaire shall be installed prior to approval. Where independent testing is required, full approval will not be given until complete test results, demonstrating compliance with the specifications, have been reviewed and accepted by the Engineer.

Pole wiring shall be provided with the luminaire. Pole wire shall run from handhole to luminaire. Pole wire shall be sized No. 10, rated 600 V, RHW/USE-2, and have copper conductors, stranded in conformance with ASTM B 8. Pole wire shall be insulated with cross-linked polyethylene (XLP) insulation. Pole wire shall include a phase, neutral, and green ground wire. Wire shall be trained within the pole or sign structure so as to avoid abrasion or damage to the insulation.

Pole wire shall be extended through the pole, pole grommet, luminaire ring, and any associated arm and tenon. The pole wire shall be terminated in a manner that avoids sharp kinks, pinching, pressure on the insulation, or any other arrangement prone to damaging insulation value and producing poor megger test results. Wires shall be trained away from heat sources within the luminaire. Wires shall be terminated so all strands are extended to the full depth of the terminal lug with the insulation removed far enough so it abuts against the shoulder of the lug, but is not compressed as the lug is tightened.

Included with the pole wiring shall be fusing located in the handhole. Fusing shall be according to Article 1065.01 with the exception that fuses shall be 6 amperes.

Each luminaire and optical assembly shall be free of all dirt, smudges, etc. Should the optical assembly require cleaning, a luminaire manufacturer approved cleaning procedure shall be used.

Horizontal mount luminaires shall be installed in a level, horizontal plane, with adjustments as needed to insure the optics are set perpendicular to the traveled roadway.

When the pole is bridge mounted, a minimum size stainless steel 1/4-20NC set screw shall be provided to secure the luminaire to the mast arm tenon. A hole shall be drilled and tapped through the tenon and luminaire mounting bracket and then fitted with the screw.

Warranty.

The entire luminaire and all of its component parts shall be covered by a 10-year warranty. Failure is when one or more of the following occur:

- 1) Negligible light output from more than 10 percent of the discrete LEDs.
- 2) Significant moisture that deteriorates performance of the luminaire.
- 3) Driver that continues to operate at a reduced output due to overheating.

The warranty period shall begin on the date of luminaire delivery. The Contractor shall verify that the Resident Engineer has noted the delivery date in the daily diary. Copy of the shipment and delivery documentation shall be submitted with the final documentation.

The replacement luminaire shall be of the same manufacturer, model, and photometric distribution as the original.

Method of Measurement.

The rated initial minimum luminous flux (lumen output) of the light source, as installed in the luminaire, shall be according to the following table for each specified output designation.

| Designation Type | Minimum Initial Luminous Flux | Designation Type | Minimum Initial Luminous Flux |
|------------------|-------------------------------|------------------|-------------------------------|
| A | 2,200 | F | 12,500 |
| B | 3,150 | G | 15,500 |
| C | 4,400 | H | 25,200 |
| D | 6,300 | I | 33,000 |
| E | 9,450 | | |

Where delivered lumens is defined as the minimum initial delivered lumens at the specified color temperature. Luminaires with an initial luminous flux less than the values listed in the above table will not be acceptable even if they meet the requirements given in the Luminaire Performance table shown in the contract.

Basis of Payment.

This work will be paid for at the contract unit price per EACH for **LUMINAIRE, LED, ROADWAY**, of the output designation specified.

TEMPORARY LUMINAIRE, LED, ROADWAY

Effective: November 1, 2024

Description.

This work shall consist of furnishing and installing a temporary roadway LED luminaire as shown on the plans, as specified herein.

General.

In order to expedite the roadway work, the luminaire may be new or previously used. **The luminaire shall be of the output designation specified and the distribution pattern specified in the plans.**

The luminaire shall remain the property of the Contractor.

The luminaire shall be listed for wet locations by an NRTL and shall meet the requirements of UL 1598 and UL 8750

Used luminaires shall be no older than five years old. Documentation shall be submitted to verify compliance with this requirement.

Submittal Requirements.

The Contractor shall submit manufacturer's product data for each type of luminaire including descriptive literature and catalogue cuts.

A sample luminaire shall also be provided upon request of the Engineer. The sample shall be as proposed for the contract and shall be delivered by the Contractor to the District Headquarters. After review, the Contractor shall retrieve the luminaire.

Housing.

The luminaire shall slip-fit on a mounting arm with a 2" diameter tenon (2.375" outer diameter). The luminaire shall be provided with a leveling surface and shall be capable of being tilted ± 5 degrees from the axis of attachment in 2.5 degree increments and rotated to any degree with respect to the supporting arm.

An external label consisting of two black characters on a white background with the dimensions of the label and the characters as specified in ANSI C136.15 for HPS luminaires. The first character shall be the alphabetical character representing the initial lumen output as specified in Table 1 of Article 1067.06(c). The second character shall be the numerical character representing the transverse light distribution type as specified in IES RP-8 (i.e. Types 1, 2, 3, 4, or 5).

Wiring.

Wiring within the electrical enclosure shall be rated at 600v, 105°C or higher.

Driver.

The driver shall have an input voltage range of 120 to 277 volts ($\pm 10\%$) or 347 to 480 volts ($\pm 10\%$) according to the contract documents.

The driver shall meet the requirements of the FCC Rules and Regulations, Title 47, Part 15 for Class A devices with regard to electromagnetic compatibility. This shall be confirmed through the testing methods in accordance with ANSI C63.4 for electromagnetic interference.

Surge Protection.

The luminaire shall comply the requirements of ANSI C136.2 for electrical transient immunity at the "Extreme" level (20KV/10KA) and shall be equipped with a surge protective device (SPD) that is UL1449 compliant with indicator light. An SPD failure shall open the circuit to protect the driver.

Installation.

Each luminaire shall be installed according to the luminaire manufacturer's recommendations.

Luminaires which are pole mounted shall be mounted on site such that poles and arms are not left unloaded. Pole mounted luminaires shall be leveled/adjusted after poles are set and vertically aligned before being energized. When mounted on a tenon, care shall be exercised to assure maximum insertion of the mounting tenon. Each luminaire shall be checked to assure compatibility with the project power system. When the night-time check of the lighting system by the Engineer indicates that any luminaires are mis-aligned, the mis-aligned luminaires shall be corrected at no additional cost.

No luminaire shall be installed prior to approval.

Pole wiring shall be provided with the luminaire. Pole wire shall run from handhole to luminaire. Pole wire shall be sized No. 10, rated 600 V, RHW/USE-2, and have copper conductors, stranded in conformance with ASTM B 8. Pole wire shall be insulated with cross-linked polyethylene (XLP) insulation. Pole wire shall include a phase, neutral, and green ground wire. Wire shall be trained within the pole or sign structure so as to avoid abrasion or damage to the insulation.

Pole wire shall be extended through the pole, pole grommet, luminaire ring, and any associated arm and tenon. The pole wire shall be terminated in a manner that avoids sharp kinks, pinching, pressure on the insulation, or any other arrangement prone to damaging insulation value and producing poor megger test results. Wires shall be trained away from heat sources within the luminaire. Wires shall be terminated so all strands are extended to the full depth of the terminal lug with the insulation removed far enough so it abuts against the shoulder of the lug, but is not compressed as the lug is tightened.

Included with the pole wiring shall be fusing located in the handhole. Fusing shall be according to Article 1065.01 with the exception that fuses shall be 6 amperes.

Each luminaire and optical assembly shall be free of all dirt, smudges, etc. Should the optical assembly require cleaning, a luminaire manufacturer approved cleaning procedure shall be used.

Horizontal mount luminaires shall be installed in a level, horizontal plane, with adjustments as needed to ensure the optics are set perpendicular to the traveled roadway.

When the pole is bridge mounted, a minimum size stainless steel 1/4-20NC set screw shall be provided to secure the luminaire to the mast arm tenon. A hole shall be drilled and tapped through the tenon and luminaire mounting bracket and then fitted with the screw.

Method of Measurement.

The rated initial minimum luminous flux (lumen output) of the light source, as installed in the luminaire, shall be according to the following table for each specified output designation.

| Designation Type | Minimum Initial Luminous Flux | Designation Type | Minimum Initial Luminous Flux |
|-------------------------|--------------------------------------|-------------------------|--------------------------------------|
| A | 2,200 | F | 12,500 |
| B | 3,150 | G | 15,500 |
| C | 4,400 | H | 25,200 |
| D | 6,300 | I | 33,000 |
| E | 9,450 | | |

Where delivered lumens is defined as the minimum initial delivered lumens at the specified color temperature. Luminaires with an initial luminous flux less than the values listed in the above table will not be acceptable.

Basis of Payment.

This work will be paid for at the contract unit price per each for TEMPORARY LUMINAIRE, LED, ROADWAY, of the output designation specified.

UNIT DUCT

Effective: January 1, 2012

Revise the first paragraph of Article 810.04 to read:

“The unit duct shall be installed at a minimum depth of 30-inches (760 mm) unless otherwise directed by the Engineer.”

Revise Article 1088.01(c) to read:

“(c) Coilable Nonmetallic Conduit.

General:

The duct shall be a plastic duct which is intended for underground use and which can be manufactured and coiled or reeled in continuous transportable lengths and uncoiled for further processing and/or installation without adversely affecting its properties of performance. The duct shall be a plastic duct which is intended for underground use and can be manufactured and coiled or reeled in continuous transportable lengths and uncoiled for further processing and/or installation without adversely affecting its properties of performance.

The duct shall be made of high density polyethylene which shall meet the requirements of ASTM D 2447, for schedule 40. The duct shall be composed of black high density polyethylene meeting the requirements of ASTM D 3350, Class C, Grade P33. The wall thickness shall be in accordance with Table 2 for ASTM D 2447.

The duct shall be UL Listed per 651-B for continuous length HDPE coiled conduit. The duct shall also comply with NEC Article 354.100 and 354.120.

Submittal information shall demonstrate compliance with the details of these requirements.

Dimensions:

Duct dimensions shall conform to the standards listed in ASTM D2447. Submittal information shall demonstrate compliance with these requirements.

| Nominal Size | | Nominal I.D. | | Nominal O.D. | | Minimum Wall | |
|--------------|------|--------------|-------|--------------|-------|--------------|--------------|
| mm | in | mm | in | mm | in | mm | in |
| 31.75 | 1.25 | 35.05 | 1.380 | 42.16 | 1.660 | 3.556 +0.51 | 0.140 +0.020 |
| 38.1 | 1.50 | 40.89 | 1.610 | 48.26 | 1.900 | 3.683 +0.51 | 0.145 +0.020 |

| Nominal Size | | Pulled Tensile | |
|--------------|------|----------------|-----|
| mm | in | N | lbs |
| 31.75 | 1.25 | 3322 | 747 |
| 38.1 | 1.50 | 3972 | 893 |

Marking:

As specified in NEMA Standard Publication No. TC-7, the duct shall be clearly and durably marked at least every 3.05 meters (10 feet) with the material designation (HDPE for high density polyethylene), nominal size of the duct and the name and/or trademark of the manufacturer.

Performance Tests:

Polyethylene Duct testing procedures and test results shall meet the requirements of UL 651. Certified copies of the test report shall be submitted to the Engineer prior to the installation of the duct. Duct crush test results shall meet or exceed the following requirements:

| Duct Diameter | | Min. force required to deform sample 50% | |
|---------------|------|--|------|
| mm | in | N | lbs |
| 35 | 1.25 | 4937 | 1110 |
| 41 | 1.5 | 4559 | 1025 |

WIRE AND CABLE

Effective: January 1, 2012

Add the following to the first paragraph of Article 1066.02(a):

“The cable shall be rated at a minimum of 90°C dry and 75°C wet and shall be suitable for installation in wet and dry locations, and shall be resistant to oils and chemicals.”

Revise the Aerial Electric Cable Properties table of Article 1066.03(a)(3) to read:

Aerial Electric Cable Properties

| Phase Conductor | | | | Messenger wire | |
|-----------------|-----------|------------------------------|------|------------------|-----------|
| Size AWG | Stranding | Average Insulation Thickness | | Minimum Size AWG | Stranding |
| | | mm | mils | | |
| 6 | 7 | 1.1 | (45) | 6 | 6/1 |
| 4 | 7 | 1.1 | (45) | 4 | 6/1 |
| 2 | 7 | 1.1 | (45) | 2 | 6/1 |
| 1/0 | 19 | 1.5 | (60) | 1/0 | 6/1 |
| 2/0 | 19 | 1.5 | (60) | 2/0 | 6/1 |
| 3/0 | 19 | 1.5 | (60) | 3/0 | 6/1 |
| 4/0 | 19 | 1.5 | (60) | 4/0 | 6/1 |

Add the following to Article 1066.03(b) of the Standard Specifications:

“Cable sized No. 2 AWG and smaller shall be U.L. listed Type RHH/RHW and may be Type RHH/RHW/USE. Cable sized larger than No. 2 AWG shall be U.L. listed Type RHH/RHW/USE.”

Revise Article 1066.04 to read:

“Aerial Cable Assembly. The aerial cable shall be an assembly of insulated aluminum conductors according to Section 1066.02 and 1066.03. Unless otherwise indicated, the cable assembly shall be composed of three insulated conductors and a steel reinforced bare aluminum conductor (ACSR) to be used as the ground conductor. Unless otherwise indicated, the code word designation of this cable assembly is “Palomino”. The steel reinforced aluminum conductor shall conform to ASTM B-232. The cable shall be assembled according to ANSI/ICEA S-76-474.”

Revise the second paragraph of Article 1066.05 to read:

“The tape shall have reinforced metallic detection capabilities consisting of a woven reinforced polyethylene tape with a metallic core or backing.”

ORNAMENTAL LIGHTING UNIT, COMPLETE

Description. This item shall consist of furnishing, testing as required, and installing a complete assembly of ornamental decorative pole, and luminaires suitable for permanent roadway lighting as specified herein.

General. The lighting pole, ornamental base, anchor base, luminaire arms and luminaries shall be a complete assembly and designed and installed as detailed on the plans. The pole and luminaire assembly shall be designed for a minimum wind speed of 90 mph with a 1.3 gust factor and is in accordance with the latest edition of the American Association of State and Highway Officials (AASHTO) specifications for luminaire supports and assemblies.

Pole. The pole assembly shall consist of a steel 40' pole shaft, a steel anchor base, an ornamental shroud, luminaire arms as detailed on the plans. The pole shaft will have one 4" x 8" reinforced handholes with a 1 ½-13 grounding lug and a gasketed handhole cover with stainless steel core nylon hex head screws. Four (4) galvanized steel anchor bolts with two (2) each hex nuts and flat washers for leveling will be supplied to anchor the pole. The anchor bolts shall conform to ASTM F1554 Grade 105. The pole shall be Holophane as shown on the plans.

Luminaire. The luminaire shall be Holophane LED for roadway and LED for sidewalk as shown on the plan details.

Fusing. Fuse holders and fuses shall be supplied. For lighting, the fusing shall be standard-type small dimension double pole fuse holders with insulated boots and (2) 3A fuses.

Finish. The pole, luminaries and bracket arm assembly shall all be painted black using a powder coat paint process. The paint finish procedures shall be submitted with catalog cuts at the time of contract award.

Warranty. Five-year limited warranty. See product and finish warranty guide for details.

Listings. UL listed, suitable for wet locations.

Method of Measurement. The assembly furnished and installed will be measured as each.

Basis of Payment. This item shall be paid at the contract unit price EACH for ORNAMENTAL LIGHT UNIT, COMPLETE, which shall be payment in full for the material and work described herein.

LIGHT POLE FOUNDATION, 24" DIAMETER, OFFSET

Description. This work shall consist of excavating, constructing, and backfilling offset light pole foundations in accordance with Section 836 of the Standard Specifications except as specified herein this special provision, and the details shown on the plans. Offset foundations shall be installed at locations where the utility conflict can be resolved by laterally offsetting the drilled shaft of the foundation.

The determination of foundation type shall be made in the field by the Engineer, based upon the actual locations of utilities. Payment will be made according to quantity of each foundation type installed, and no additional compensation will be allowed for subtractions or additions to contract quantities for the various foundation types.

Excavation, including shoring, material disposal, and pumping, bailing or otherwise draining the excavated area shall not be paid for separately, but shall be included in the contract unit price for offset foundations.

Backfilling and thoroughly compacting material conforming to Article 1004 and shall not be paid for separately, but shall be considered as included in the contract unit price for offset foundations. Concrete shall cure in accordance with Article 1020.13 before being backfilled.

Basis of Payment. Offset foundations will be measured for payment in accordance with Article 836.04 of the Standard Specifications, and paid at the contract unit price per FOOT for LIGHT POLE FOUNDATION, 24" DIAMETER, OFFSET.

TEMPORARY LIGHTING SYSTEM

Description. This work shall consist of providing an isolated, self-contained temporary lighting system at the project location(s) specified in the plans. Installations will be intended to illuminate the approaches and circulating roadway of project roundabouts, either in an interim condition or prior to the activation of permanent lighting, in a configuration that meets with the approval of the Engineer. Generally, the quantity and locations of the temporary lighting units shall match the quantity and locations of the proposed permanent lighting system as depicted in the plans.

The Contractor shall provide all labor, material, and equipment necessary to furnish, install, maintain, and remove the temporary lighting system, and pay all utility charges associated with it. This work shall also include the relocation of temporary lighting facilities as necessary to accommodate the various stages of construction and removal of all temporary lighting facilities at the completion of the project. All work shall be performed in accordance with the plans, Standard Specifications, as directed by the Engineer, and as described herein.

General. While multiple significant adjustments to the Temporary Lighting System(s) are not anticipated, the Contractor must be prepared to submit for the District's approval any modifications to the lighting design plan showing the proposed locations of all temporary poles for each stage of construction associated with each phase of the project. Any modifications by the Contractor to the lighting design shall meet with the approval of the Engineer. No poles shall be installed until the Contractor's revised detailed lighting design plan is approved by the Engineer.

No temporary lighting facilities shall be purchased until the Contractor has submitted shop drawings and received the Engineer's approval to proceed. All temporary lighting facilities shall become property of the Contractor and shall be removed from the site at no additional cost. Any temporary lighting materials used by the Contractor which come from stock rather than being purchased new for this project shall require written approval by the Engineer.

The Contractor shall be responsible to maintain each temporary lighting system, once installed, for the duration of the project and no additional compensation will be allowed for this work, no matter how many times temporary and/or permanent lighting facilities are relocated. The Contractor shall provide the Engineer with the names and phone numbers of two persons available for call-out work on the lighting system 24 hours per day, seven days per week.

Cable splicing, luminaire fusing, and lightning protection shall be submitted for the District's approval. All work required to keep the temporary and/or permanent lighting systems operational shall be at the Contractor's expense. No lighting circuit or portion thereof shall be removed from nighttime operation without the approval of the Engineer.

An inspection and approval by the Engineer shall take place before the temporary lighting system is approved for operation. Any damage to the existing lighting units and their circuitry as a result of the Contractor's workmanship shall be repaired or replaced to the satisfaction of the Engineer at no cost to the Department. All burnouts shall be replaced on a next day basis and temporary wiring shall be installed as necessary to keep all lights functioning every night.

The Contractor shall be responsible for all costs associated with providing service to the lighting system as the project progresses through the various stages of construction and circuit orientation changes. This shall include all costs of coordinating with the local utility for new and/or relocated electric service and metering

Basis of Payment. This work shall be paid for at the contract unit price per EACH for TEMPORARY LIGHTING SYSTEM.

AGGREGATE SUBGRADE IMPROVEMENT (BDE)

Effective: April 1, 2012

Revised: April 1, 2022

Add the following Section to the Standard Specifications:

“SECTION 303. AGGREGATE SUBGRADE IMPROVEMENT

303.01 Description. This work shall consist of constructing an aggregate subgrade improvement (ASI).

303.02 Materials. Materials shall be according to the following.

| Item | Article/Section |
|--|-----------------|
| (a) Coarse Aggregate | 1004.07 |
| (b) Reclaimed Asphalt Pavement (RAP) | 1031.09 |

303.03 Equipment. The vibratory roller shall be according to Article 1101.01, or as approved by the Engineer. Vibratory machines, such as tampers, shall be used in areas where rollers do not fit.

303.04 Soil Preparation. The minimum immediate bearing value (IBV) of the soil below the improved subgrade shall be according to the Department’s “Subgrade Stability Manual” for the aggregate thickness specified.

303.05 Placing and Compacting. The maximum nominal lift thickness of aggregate gradations CA 2, CA 6, and CA 10 when compacted shall be 9 in. (225 mm). The maximum nominal lift thickness of aggregate gradations CS 1, CS 2, and RR 1 when compacted shall be 24 in. (600 mm).

The top surface of the aggregate subgrade improvement shall consist of a layer of capping aggregate gradations CA 6 or CA 10 that is 3 in. (75 mm) thick after compaction. Capping aggregate will not be required when aggregate subgrade improvement is used as a cubic yard pay item for undercut applications.

Each lift of aggregate shall be compacted to the satisfaction of the Engineer. If the moisture content of the material is such that compaction cannot be obtained, sufficient water shall be added so that satisfactory compaction can be obtained.

303.06 Finishing and Maintenance. The aggregate subgrade improvement shall be finished to the lines, grades, and cross sections shown on the plans, or as directed by the Engineer. The aggregate subgrade improvement shall be maintained in a smooth and compacted condition.

303.07 Method of Measurement. This work will be measured for payment according to Article 311.08.

303.08 Basis of Payment. This work will be paid for at the contract unit price per cubic yard (cubic meter) or ton (metric ton) for AGGREGATE SUBGRADE IMPROVEMENT or at the contract unit price per square yard (square meter) for AGGREGATE SUBGRADE IMPROVEMENT, of the thickness specified.”

Add the following to Section 1004 of the Standard Specifications:

“1004.07 Coarse Aggregate for Aggregate Subgrade Improvement (ASI). The aggregate shall be according to Article 1004.01 and the following.

- (a) Description. The coarse aggregate shall be crushed gravel, crushed stone, or crushed concrete. In applications where greater than 24 in. (600 mm) of ASI material is required, gravel may be used below the top 12 in (300 mm) of ASI.
- (b) Quality. The coarse aggregate shall consist of sound durable particles reasonably free of deleterious materials.
- (c) Gradation.
 - (1) The coarse aggregate gradation for total ASI thickness less than or equal to 12 in. (300 mm) shall be CA 2, CA 6, CA 10, or CS 1.

The coarse aggregate gradation for total ASI thickness greater than 12 in. (300 mm) shall be CS 1 or CS 2 as shown below or RR 1 according to Article 1005.01(c).

| Grad No. | COARSE AGGREGATE SUBGRADE GRADATIONS | | | | |
|----------|--------------------------------------|--------|---------|---------|---------|
| | Sieve Size and Percent Passing | | | | |
| | 8” | 6” | 4” | 2” | #4 |
| CS 1 | 100 | 97 ± 3 | 90 ± 10 | 45 ± 25 | 20 ± 20 |
| CS 2 | | 100 | 80 ± 10 | 25 ± 15 | |

| Grad No. | COARSE AGGREGATE SUBGRADE GRADATIONS (Metric) | | | | |
|----------|---|--------|---------|---------|---------|
| | Sieve Size and Percent Passing | | | | |
| | 200 mm | 150 mm | 100 mm | 50 mm | 4.75 mm |
| CS 1 | 100 | 97 ± 3 | 90 ± 10 | 45 ± 25 | 20 ± 20 |
| CS 2 | | 100 | 80 ± 10 | 25 ± 15 | |

- (2) Capping aggregate shall be gradation CA 6 or CA 10.”

Add the following to Article 1031.09 of the Standard Specifications:

“(b) RAP in Aggregate Subgrade Improvement (ASI). RAP in ASI shall be according to Articles 1031.01(a), 1031.02(a), 1031.06(a)(1), and 1031.06(a)(2), and the following.

- (1) The testing requirements of Article 1031.03 shall not apply.
- (2) Crushed RAP used for the lower lift may be mechanically blended with aggregate gradations CS 1, CS 2, and RR 1 but it shall be no greater than 40 percent of the total product volume. RAP agglomerations shall be no greater than 4 in. (100 mm).

- (3) For capping aggregate, well graded RAP having 100 percent passing the 1 1/2 in. (38 mm) sieve may be used when aggregate gradations CS 1, CS 2, CA 2, or RR 1 are used in the lower lift. FRAP will not be permitted as capping material.

Blending shall be through calibrated interlocked feeders or a calibrated blending plant such that the prescribed blending percentage is maintained throughout the blending process. The calibration shall have an accuracy of ± 2.0 percent of the actual quantity of material delivered."

BITUMINOUS MATERIALS COST ADJUSTMENTS (BDE)

Effective: November 2, 2006

Revised: August 1, 2017

Description. Bituminous material cost adjustments will be made to provide additional compensation to the Contractor, or credit to the Department, for fluctuations in the cost of bituminous materials when optioned by the Contractor. The bidder shall indicate with their bid whether or not this special provision will be part of the contract.

The adjustments shall apply to permanent and temporary hot-mix asphalt (HMA) mixtures, bituminous surface treatments (cover and seal coats), and preventative maintenance type surface treatments that are part of the original proposed construction, or added as extra work and paid for by agreed unit prices. The adjustments shall not apply to bituminous prime coats, tack coats, crack filling/sealing, joint filling/sealing, or extra work paid for at a lump sum price or by force account.

Method of Adjustment. Bituminous materials cost adjustments will be computed as follows.

$$CA = (BPI_P - BPI_L) \times (\%AC_V / 100) \times Q$$

Where: CA = Cost Adjustment, \$.

BPI_P = Bituminous Price Index, as published by the Department for the month the work is performed, \$/ton (\$/metric ton).

BPI_L = Bituminous Price Index, as published by the Department for the month prior to the letting for work paid for at the contract price; or for the month the agreed unit price letter is submitted by the Contractor for extra work paid for by agreed unit price, \$/ton (\$/metric ton).

%AC_V = Percent of virgin Asphalt Cement in the Quantity being adjusted. For HMA mixtures, the % AC_V will be determined from the adjusted job mix formula. For bituminous materials applied, a performance graded or cutback asphalt will be considered to be 100% AC_V and undiluted emulsified asphalt will be considered to be 65% AC_V.

Q = Authorized construction Quantity, tons (metric tons) (see below).

For HMA mixtures measured in square yards: $Q, \text{ tons} = A \times D \times (G_{mb} \times 46.8) / 2000$. For HMA mixtures measured in square meters: $Q, \text{ metric tons} = A \times D \times (G_{mb} \times 1) / 1000$. When computing

adjustments for full-depth HMA pavement, separate calculations will be made for the binder and surface courses to account for their different G_{mb} and $\% AC_v$.

For bituminous materials measured in gallons: $Q, \text{ tons} = V \times 8.33 \text{ lb/gal} \times SG / 2000$
For bituminous materials measured in liters: $Q, \text{ metric tons} = V \times 1.0 \text{ kg/L} \times SG / 1000$

Where: A = Area of the HMA mixture, sq yd (sq m).
D = Depth of the HMA mixture, in. (mm).
 G_{mb} = Average bulk specific gravity of the mixture, from the approved mix design.
V = Volume of the bituminous material, gal (L).
SG = Specific Gravity of bituminous material as shown on the bill of lading.

Basis of Payment. Bituminous materials cost adjustments may be positive or negative but will only be made when there is a difference between the BPI_L and BPI_P in excess of five percent, as calculated by:

$$\text{Percent Difference} = \{(BPI_L - BPI_P) \div BPI_L\} \times 100$$

Bituminous materials cost adjustments will be calculated for each calendar month in which applicable bituminous material is placed; and will be paid or deducted when all other contract requirements for the work placed during the month are satisfied. The adjustments shall not apply during contract time subject to liquidated damages for completion of the entire contract.

BUILDING REMOVAL WITH ASBESTOS ABATEMENT (BDE)

Effective: September 1, 1990

Revised: August 1, 2022

Description. This work shall consist of the removal and disposal of building(s), including all foundations, retaining walls, and piers, down to a plane 1 ft (300 mm) below the ultimate bottom of building elevation or proposed bottom of construction elevation. The building(s) are identified as follows:

| <u>Bldg. No.</u> | <u>Parcel No.</u> | <u>Location</u> | <u>Description</u> |
|------------------|-------------------|---|----------------------------------|
| 1 | 1NU0096 | 406 North Eastwood Drive, Woodstock, IL 60098 | Single story commercial building |

CONSTRUCTION REQUIREMENTS

General. The IEPA's "State of Illinois Demolition/Renovation/Asbestos Project Notification Form" shall be submitted and a copy sent to the Engineer. It shall be updated if there is a change in the start and/or finish date or if the quantity of asbestos changes by more than 20 percent.

Asbestos abatement work shall be performed by an IDPH licensed Contractor prequalified with the Illinois Capital Development Board who has an on-site supervisor licensed by IDPH and employs workers licensed by IDPH. This work shall be completed according to the requirements of the U.S. Environmental Protection Agency (USEPA), IEPA, OSHA, and local regulatory agencies.

Discontinuance of Utilities. The Contractor shall arrange for the discontinuance of all utility services and the removal of the metering devices that serve the building(s) according to the respective requirements and regulations of the city, county, or utility companies involved. The Contractor shall disconnect and seal the service outlets.

Posting. Upon execution of the contract and prior to the removal of any buildings, the Contractor shall paint or stencil, in contrasting colors of an oil base paint, on all sides of each building or structure, the following posting:

NO TRESPASSING
VIOLATORS WILL BE PROSECUTED

The postings shall be positioned prominently on the structure(s) so they can be easily read and at a sufficient height to prevent defacing.

Asbestos Abatement. Friable asbestos containing building materials (ACBMs) and Category II non-friable ACBMs shall be removed from the building(s) prior to demolition. Category II non-friable ACBMs include asbestos containing transite boards, siding, and other cementitious materials (cement pipe or highly weathered roofing shingles/materials) which have a likelihood of becoming friable during typical demolition activities (by crumbling, pulverizing, or otherwise reducing to powder) making them regulated asbestos containing materials (RACM). Removed ACBM shall be kept separate from non-ACBM demolition debris for purposes of transport and disposal.

Category I non-friable ACBM may be kept in place for demolition or removal of the building unless it has become friable as determined by the ACBM inspector. If the Contractor demolishes the building(s) with the non-friable asbestos in place, the following shall apply.

- (a) The Contractor shall continuously wet the non-friable ACBM and other building debris with water during demolition and loading for disposal.
- (b) The Contractor shall dispose of all demolition debris as ACBM.

The Contractor shall perform air monitoring during asbestos abatement activities. Air sampling shall be conducted by a qualified air sampling professional. Air sampling shall be conducted according to NIOSH Method 7400. Air monitoring equipment shall be calibrated and maintained in proper operating condition. The Contractor shall submit a copy of the air sampling professional's certificate to the Engineer. The results of the tests, and daily calibration and maintenance records shall be kept on site and be available to the Engineer upon request.

Personal monitoring shall be conducted per applicable OSHA regulations. Excursion limits shall be monitored daily, and corrective actions taken immediately to bring excursions within OSHA permissible exposure limits.

When asbestos is removed prior to demolition, clearance testing per IDPH shall be conducted upon the removal of ACBM.

Submittals. The following submittals shall be made to the Engineer prior to the start of the asbestos abatement:

- (a) Manufacturer's certification stating that vacuums, ventilation equipment, and other equipment required to contain airborne fibers conform to ANSI 29.2.
- (b) A listing of the brand name, manufacturer, and specification of all sealants or surfactants to be used.
- (c) Proof that arrangements for transport and disposal of ACBMs have been obtained (i.e., a letter of authorization to utilize designated landfill).
- (d) A detailed work plan of the Contractor's anticipated procedures including the location and layout of decontamination units, the sequencing of work, the respiratory protection plan, a site safety plan, a disposal plan, and a detailed description of the methods to be used to control pollution.
- (e) Proof of the Contractor's prequalification with Capital Development Board and employee certifications with IDPH.

Submittals that shall be made upon completion of abatement work:

- (f) Copies of waste chain-of-custodies, trip tickets, shipping manifests, or disposal receipts for asbestos waste materials removed from the work area.
- (g) Copies of each day's work site entry logbook with information on worker and visitor access.
- (h) Logs documenting filter changes on respirators, HEPA vacuums, negative pressure ventilation units, and other engineering controls.
- (i) Test results of any bulk material analysis and air sampling data collected during the abatement including results of any on-site testing by any federal, state, or local agency.

Any holes, such as basements, shall be backfilled according to Article 502.10.

Basis of Payment. This work will be paid for at the contract lump sum unit price for BUILDING REMOVAL NO. 1 .

Removal and disposal of friable ACBM will be paid for at the contract lump sum unit price for REMOVAL AND DISPOSAL OF FRIABLE ASBESTOS, BUILDING NO. 1 .

Removal and disposal of non-friable ACBM will be paid for at the contract lump sum unit price for REMOVAL AND DISPOSAL OF NON-FRIABLE ASBESTOS, BUILDING NO. .

CEMENT, FINELY DIVIDED MINERALS, ADMIXTURES; CONCRETE, AND MORTAR (BDE)

Effective: January 1, 2025

Revise the first paragraph of Article 285.05 of the Standard Specifications to read:

“285.05 Fabric Formed Concrete Revetment Mat. The grout shall consist of a mixture of cement, fine aggregate, and water so proportioned and mixed as to provide a pumpable slurry. Fly ash or ground granulated blast furnace (GGBF) slag, and concrete admixtures may be used at the option of the Contractor. The grout shall have an air content of not less than 6.0 percent nor more than 9.0 percent of the volume of the grout. The mix shall obtain a compressive strength of 2500 psi (17,000 kPa) at 28 days according to Article 1020.09.”

Revise Article 302.02 of the Standard Specifications to read:

“302.02 Materials. Materials shall be according to the following.

| Item | Article/Section |
|---|-----------------|
| (a) Cement | 1001 |
| (b) Water | 1002 |
| (c) Hydrated Lime | 1012.01 |
| (d) By-Product, Hydrated Lime | 1012.02 |
| (e) By-Product, Non-Hydrated Lime | 1012.03 |
| (f) Lime Slurry | 1012.04 |
| (g) Fly Ash | 1010 |
| (h) Soil for Soil Modification (Note 1) | 1009.01 |
| (i) Bituminous Materials (Note 2) | 1032 |

Note 1. This soil requirement only applies when modifying with lime (slurry or dry).

Note 2. The bituminous materials used for curing shall be emulsified asphalt RS-2, CRS-2, HFE 90, or HFE 150; rapid curing liquid asphalt RC-70; or medium curing liquid asphalt MC-70 or MC-250.”

Revise Article 312.07(c) of the Standard Specifications to read:

“(c) Cement1001”

Add Article 312.07(i) of the Standard Specifications to read:

“(i) Ground Granulated Blast Furnace (GGBF) Slag1010”

Revise the first paragraph of Article 312.09 of the Standard Specifications to read:

“312.09 Proportioning and Mix Design. At least 60 days prior to start of placing CAM II, the Contractor shall submit samples of materials to be used in the work for proportioning and testing. The mixture shall contain a minimum of 200 lb (120 kg) of cement per cubic yard (cubic meter). Cement may be replaced with fly ash or ground granulated blast furnace (GGBF) slag according to Article 1020.05(c)(1) or 1020.05(c)(2), respectively, however the minimum cement content in the mixture shall be 170 lbs/cu yd (101 kg/cu m). Blends of coarse and fine aggregates will be permitted, provided the volume of fine aggregate does not exceed the volume of coarse aggregate. The Engineer will determine the proportions of materials for the mixture according to the “Portland Cement Concrete Level III Technician Course” manual. However, the Contractor may substitute their own mix design. Article 1020.05(a) shall apply, and a Level III PCC Technician shall develop the mix design.”

Revise Article 352.02 of the Standard Specifications to read:

“352.02 Materials. Materials shall be according to the following.

| Item | Article/Section |
|--|-----------------|
| (a) Cement (Note 1) | 1001 |
| (b) Soil for Soil-Cement Base Course | 1009.03 |
| (c) Water | 1002 |
| (d) Bituminous Materials (Note 2) | 1032 |

Note 1. Bulk cement may be used for the traveling mixing plant method if the equipment for handling, weighing, and spreading the cement is approved by the Engineer.

Note 2. The bituminous materials used for curing shall be emulsified asphalt RS-2, CRS-2, HFE 90, or HFE 150; rapid curing liquid asphalt RC-70; or medium curing liquid asphalt MC-70 or MC-250.”

Revise Article 404.02 of the Standard Specifications to read:

“404.02 Materials. Materials shall be according to the following.

| Item | Article/Section |
|---|-----------------|
| (a) Cement | 1001 |
| (b) Water | 1002 |
| (c) Fine Aggregate | 1003.08 |
| (d) Bituminous Material (Tack Coat) | 1032.06 |
| (e) Emulsified Asphalts (Note 1) (Note 2) | 1032.06 |
| (f) Fiber Modified Joint Sealer | 1050.05 |
| (g) Additives (Note 3) | |

Note 1. When used for slurry seal, the emulsified asphalt shall be CQS-1h according to Article 1032.06(b).

Note 2. When used for micro-surfacing, the emulsified asphalt shall be CQS-1hP according to Article 1032.06(e).

Note 3. Additives may be added to the emulsion mix or any of the component materials to provide the control of the quick-traffic properties. They shall be included as part of the mix design and be compatible with the other components of the mix.

Revise the last sentence of the fourth paragraph of Article 404.08 of the Standard Specifications to read:

“When approved by the Engineer, the sealant may be dusted with fine sand, cement, or mineral filler to prevent tracking.”

Revise Note 2 of Article 516.02 of the Standard Specifications to read:

“Note 2. The sand-cement grout mix shall be according to Section 1020 and shall be a 1:1 blend of sand and cement comprised of a Type I, IL, or II cement at 185 lb/cu yd (110 kg/cu m). The maximum water cement ratio shall be sufficient to provide a flowable mixture with a typical slump of 10 in. (250 mm).”

Revise Note 2 of Article 543.02 of the Standard Specifications to read:

“ Note 2. The grout mixture shall be 6.50 hundredweight/cu yd (385 kg/cu m) of cement plus fine aggregate and water. Fly ash or ground granulated blast furnace (GGBF) slag may replace a maximum of 5.25 hundredweight/cu yd (310 kg/cu m) of the cement. The water/cement ratio, according to Article 1020.06, shall not exceed 0.60. An air-entraining admixture shall be used to produce an air content, according to Article 1020.08, of not less than 6.0 percent nor more than 9.0 percent of the volume of the grout. The Contractor shall have the option to use a water-reducing or high range water-reducing admixture.”

Revise Article 583.01 of the Standard Specifications to read:

“**583.01 Description.** This work shall consist of placing cement mortar along precast, prestressed concrete bridge deck beams as required for fairing out any unevenness between adjacent deck beams prior to placing of waterproofing membrane and surfacing.”

Revise Article 583.02(a) of the Standard Specifications to read:

“(a) Cement1001”

Revise the first paragraph of Article 583.03 of the Standard Specifications to read:

“ **583.03 General.** This work shall only be performed when the air temperature is 45 °F (7 °C) and rising. The mixture for cement mortar shall consist of three parts sand to one part cement by volume. The amount of water shall be no more than that necessary to produce a workable, plastic mortar.”

Revise Note 2/ in Article 1003.01(b) of the Standard Specifications to read:

“2/ Applies only to sand. Sand exceeding the colorimetric test standard of 11 (Illinois Modified AASHTO T 21) will be checked for mortar making properties according to Illinois Modified ASTM C 87 and shall develop a compressive strength at the age of

14 days when using Type I, IL, or II cement of not less than 95 percent of the comparable standard.

Revise the second sentence of Article 1003.02(e)(1) of the Standard Specifications to read:

“The test will be performed with Type I, IL, or II portland cement having a total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of 0.90 percent or greater.”

Revise the first sentence of the second paragraph of Article 1003.02(e)(3) of the Standard Specifications to read:

“The ASTM C 1293 test shall be performed with Type I, IL, or II portland cement having a total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of 0.80 percent or greater.”

Revise the second sentence of Article 1004.02(g)(1) of the Standard Specifications to read:

“The test will be performed with Type I, IL, or II portland cement having a total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of 0.90 percent or greater.”

Revise Article 1017.01 of the Standard Specifications to read:

“1017.01 Requirements. The mortar shall be high-strength according to ASTM C 387 and shall have a minimum 80.0 percent relative dynamic modulus of elasticity when tested by the Department according to Illinois Modified AASHTO T 161 or AASHTO T 161 when tested by an independent lab. The high-strength mortar shall have a water-soluble chloride ion content of less than 0.40 lb/cu yd (0.24 kg/cu m). The test shall be performed according to ASTM C 1218, and the high-strength mortar shall have an age of 28 to 42 days at the time of test. The ASTM C 1218 test shall be performed by an independent lab a minimum of once every five years, and the test results shall be provided to the Department. Mixing of the high-strength mortar shall be according to the manufacturer’s specifications. The Department will maintain a qualified product list.”

Revise the fourth sentence of Article 1018.01 of the Standard Specifications to read:

“The ASTM C 1218 test shall be performed by an independent lab a minimum of once every five years, and the test results shall be provided to the Department.”

Revise Article 1019.02 of the Standard Specifications to read:

“1019.02 Materials. Materials shall be according to the following.

| Item | Article/Section |
|--|-----------------|
| (a) Cement | 1001 |
| (b) Water | 1002 |
| (c) Fine Aggregate for Controlled Low-Strength Material (CLSM) | 1003.06 |
| (d) Fly Ash | 1010 |
| (e) Ground Granulated Blast Furnace (GGBF) Slag..... | 1010 |
| (f) Admixtures (Note 1) | |

Note 1. The air-entraining admixture may be in powder or liquid form. Prior to approval, a CLSM air-entraining admixture will be evaluated by the Department. The admixture

shall be able to meet the air content requirements of Mix 2. The Department will maintain a qualified product list.”

Revise Article 1019.05 of the Standard Specifications to read:

“**1019.05 Department Mix Design.** The Department mix design shall be Mix 1, 2, or 3 and shall be proportioned to yield approximately one cubic yard (cubic meter).

| Mix 1 | |
|--|-----------------------|
| Cement | 50 lb (30 kg) |
| Fly Ash – Class C or F, and/or GGBF Slag | 125 lb (74 kg) |
| Fine Aggregate – Saturated Surface Dry | 2900 lb (1720 kg) |
| Water | 50-65 gal (248-322 L) |
| Air Content | No air is entrained |

| Mix 2 | |
|--|-----------------------|
| Cement | 125 lb (74 kg) |
| Fine Aggregate – Saturated Surface Dry | 2500 lb (1483 kg) |
| Water | 35-50 gal (173-248 L) |
| Air Content | 15-25 % |

| Mix 3 | |
|--|-----------------------|
| Cement | 40 lb (24 kg) |
| Fly Ash – Class C or F, and/or GGBF Slag | 125 lb (74 kg) |
| Fine Aggregate – Saturated Surface Dry | 2500 lb (1483 kg) |
| Water | 35-50 gal (179-248 L) |
| Air Content | 15-25 %” |

Revise Article 1020.04, Table 1, Note (8) of the Standard Specifications to read:

“(8) In addition to the Type III portland cement, 100 lb/cu yd of ground granulated blast-furnace slag and 50 lb/cu yd of microsilica (silica fume) shall be used. For an air temperature greater than 85 °F, the Type III portland cement may be replaced with Type I, IL, or II portland cement.”

Revise Article 1020.04, Table 1 (Metric), Note (8) of the Standard Specifications to read:

“(8) In addition to the Type III portland cement, 60 kg/cu m of ground granulated blast-furnace slag and 30 kg/cu m of microsilica (silica fume) shall be used. For an air temperature greater than 30 °C, the Type III portland cement may be replaced with Type I, IL, or II portland cement.”

Revise the second paragraph of Article 1020.05(a) of the Standard Specifications to read:

“For a mix design using a portland-pozzolan cement, portland blast-furnace slag cement, portland-limestone cement, or replacing portland cement with finely divided minerals per Articles 1020.05(c) and 1020.05(d), the Contractor may submit a mix design with a minimum portland cement content less than 400 lbs/cu yd (237 kg/cu m), but not less than

375 lbs/cu yd (222 kg/cu m), if the mix design is shown to have a minimum relative dynamic modulus of elasticity of 80 percent determined according to AASHTO T 161. Testing shall be performed by an independent laboratory accredited by AASHTO re:source for Portland Cement Concrete.”

Revise the first sentence of the first paragraph of Article 1020.05(b) of the Standard Specifications to read:

“Corrosion inhibitors and concrete admixtures shall be according to the qualified product lists.”

Delete the fourth and fifth sentences of the second paragraph of Article 1020.05(b) of the Standard Specifications.

Revise the third sentence of the second paragraph of Article 1020.05(b)(5) of the Standard Specifications to read:

“The qualified product lists of concrete admixtures shall not apply.”

Revise second paragraph of Article 1020.05(b)(10) of the Standard Specifications to read:

“When calcium nitrite is used, it shall be added at the rate of 4 gal/cu yd (20 L/cu m) and shall be added to the mix immediately after all compatible admixtures have been introduced to the batch. Other corrosion inhibitors shall be added per the manufacturer’s specifications.”

Delete the third paragraph of Article 1020.05(b)(10) of the Standard Specifications.

Revise Article 1020.15(b)(1)c. of the Standard Specifications to read:

“c. The minimum portland cement content in the mixture shall be 375 lbs/cu yd (222 kg/cu m). When the total of organic processing additions, inorganic processing additions, and limestone addition exceed 5.0 percent in the cement, the minimum portland cement content in the mixture shall be 400 lbs/cu yd (237 kg/cu m). For a drilled shaft, foundation, footing, or substructure, the minimum portland cement may be reduced to as low as 330 lbs/cu yd (196 kg/cu m) if the concrete has adequate freeze/thaw durability. The Contractor shall provide freeze/thaw test results according to AASHTO T 161, and the relative dynamic modulus of elasticity of the mix design shall be a minimum of 80 percent. Testing shall be performed by an independent laboratory accredited by AASHTO re:source for Portland Cement Concrete. Freeze/thaw testing will not be required for concrete that will not be exposed to freezing and thawing conditions as determined by the Engineer.”

Revise Article 1021.01 of the Standard Specifications to read:

“**1021.01 General.** Admixtures shall be furnished in liquid or powder form ready for use. The admixtures shall be delivered in the manufacturer’s original containers, bulk tank trucks or such containers or tanks as are acceptable to the Engineer. Delivery shall be accompanied by a ticket which clearly identifies the manufacturer, the date of manufacture, and trade name of the material.

Containers shall be readily identifiable as to manufacturer, the date of manufacture, and trade name of the material they contain.

Concrete admixtures shall be on one of the Department's qualified product lists. Unless otherwise noted, admixtures shall have successfully completed and remain current with the AASHTO Product Eval and Audit Concrete Admixture (CADD) testing program. For admixture submittals to the Department; the product brand name, manufacturer name, admixture type or types, an electronic link to the product's technical data sheet, and the NTPEP testing number which contains an electronic link to all test data shall be provided. In addition, a letter shall be submitted certifying that no changes have been made in the formulation of the material since the most current round of tests conducted by AASHTO Product Eval and Audit. After 28 days of testing by AASHTO Product Eval and Audit, air-entraining admixtures may be provisionally approved and used on Departmental projects. For all other admixtures, unless otherwise noted, the time period after which provisionally approved status may be earned is 6 months.

The manufacturer shall include the following in the submittal to the AASHTO Product Eval and Audit CADD testing program: the manufacturing range for specific gravity, the midpoint and manufacturing range for residue by oven drying, and manufacturing range of pH. The submittal shall also include an infrared spectrophotometer trace no more than five years old.

For air-entraining admixtures according to Article 1021.02, the specific gravity allowable manufacturing range established by the manufacturer shall be according to AASHTO M 194. For residue by oven drying and pH, the allowable manufacturing range and test methods shall be according to AASHTO M 194.

For admixtures according to Articles 1021.03, 1021.04, 1021.05, 1021.06, 1021.07, and 1021.08, the pH allowable manufacturing range established by the manufacturer shall be according to ASTM E 70. For specific gravity and residue by oven drying, the allowable manufacturing range and test methods shall be according to AASHTO M 194.

All admixtures, except chloride-based accelerators, shall contain a maximum of 0.3 percent chloride by weight (mass) as determined by an appropriate test method. To verify the test result, the Department will use Illinois Modified AASHTO T 260, Procedure A, Method 1.

Prior to final approval of an admixture, the Engineer reserves the right to request a sample for testing. The test and reference concrete mixtures tested by the Engineer will contain a cement content of 5.65 cwt/cu yd (335 kg/cu m). For freeze-thaw testing, the Department will perform the test according to Illinois Modified AASHTO T 161. The flexural strength test will be performed according to AASHTO T 177. If the Engineer decides to test the admixture, the manufacturer shall submit AASHTO T 197 water content and set time test results on the standard cement used by the Department. The manufacturer may select their lab or an independent lab to perform this testing. The laboratory is not required to be accredited by AASHTO.

Random field samples may be taken by the Department to verify an admixture meets specification. A split sample will be provided to the manufacturer if requested. Admixtures that do not meet specification requirements or an allowable manufacturing range established by the manufacturer shall be replaced with new material."

Revise Article 1021.03 of the Standard Specifications to read:

“1021.03 Retarding and Water-Reducing Admixtures. The admixture shall be according to the following.

- (a) Retarding admixtures shall be according to AASHTO M 194, Type B (retarding) or Type D (water-reducing and retarding).
- (b) Water-reducing admixtures shall be according to AASHTO M 194, Type A.
- (c) High range water-reducing admixtures shall be according to AASHTO M 194, Type F (high range water-reducing) or Type G (high range water-reducing and retarding).”

Revise Article 1021.05 of the Standard Specifications to read:

“1021.05 Self-Consolidating Admixtures. Self-consolidating admixture systems shall consist of either a high range water-reducing admixture only or a high range water-reducing admixture combined with a separate viscosity modifying admixture. The one or two component admixture system shall be capable of producing a concrete that can flow around reinforcement and consolidate under its own weight without additional effort and without segregation.

High range water-reducing admixtures shall be according to AASHTO M 194, Type F.

Viscosity modifying admixtures shall be according to AASHTO M 194, Type S (specific performance).”

Revise Article 1021.06 of the Standard Specifications to read:

“1021.06 Rheology-Controlling Admixture. Rheology-controlling admixtures shall be capable of producing a concrete mixture with a lower yield stress that will consolidate easier for slipform applications used by the Contractor. Rheology-controlling admixtures shall be according to AASHTO M 194, Type S (specific performance).”

Revise Article 1021.07 of the Standard Specifications to read:

“1021.07 Corrosion Inhibitor. The corrosion inhibitor shall be according to one of the following.

- (a) Calcium Nitrite. Corrosion inhibitors shall contain a minimum 30 percent calcium nitrite by weight (mass) of solution and shall comply with either the requirements of AASHTO M 194, Type C (accelerating) or the requirements of ASTM C 1582. The corrosion inhibiting performance requirements of ASTM C 1582 shall not apply.
- (b) Other Materials. The corrosion inhibitor shall be according to ASTM C 1582.

For submittals requiring testing according to ASTM M 194, Type C (accelerating), the admixture shall meet the requirements of the AASHTO Product Eval and Audit CADD testing program according to Article 1021.01.

For submittals requiring testing according to ASTM C 1582, a report prepared by an independent laboratory accredited by AASHTO re:source for portland cement concrete shall be provided. The report shall show the results of physical tests conducted no more than five years

prior to the time of submittal, according to applicable specifications. However, ASTM G 109 test information specified in ASTM C 1582 is not required to be from an independent accredited lab. All other information in ASTM C 1582 shall be from an independent accredited lab. Test data and other information required to be submitted to AASHTO Product Eval and Audit according to Article 1021.01, shall instead be submitted directly to the Department.”

Add Article 1021.08 of the Standard Specifications as follows:

“1021.08 Other Specific Performance Admixtures. Other specific performance admixtures shall, at a minimum, be according to AASHTO M 194, Type S (specific performance). The Department also reserves the right to require other testing, as determined by the Engineer, to show evidence of specific performance characteristics.

Initial testing according to AASHTO M 194 may be conducted under the AASHTO Product Eval and Audit CADD testing program according to Article 1021.01, or by an independent laboratory accredited by AASHTO re:source for Portland Cement Concrete. In either case, test data and other information required to be submitted to AASHTO Product Eval and Audit according to Article 1021.01, shall also be submitted directly to the Department. The independent accredited lab report shall show the results of physical tests conducted no more than five years prior to the time of submittal, according to applicable specifications.”

Revise Article 1024.01 of the Standard Specifications to read:

“1024.01 Requirements for Grout. The grout shall be proportioned by dry volume, thoroughly mixed, and shall have a minimum temperature of 50 °F (10 °C). Water shall not exceed the minimum needed for placement and finishing.

Materials for the grout shall be according to the following.

| Item | Article/Section |
|--|-----------------|
| (a) Cement | 1001 |
| (b) Water | 1002 |
| (c) Fine Aggregate | 1003.02 |
| (d) Fly Ash | 1010 |
| (e) Ground Granulated Blast Furnace (GGBF) Slag..... | 1010 |
| (f) Concrete Admixtures | 1021” |

Revise Note 1 of Article 1024.02 of the Standard Specifications to read:

“Note 1. Nonshrink grout shall be according to Illinois Modified ASTM C 1107.

The nonshrink grout shall have a water-soluble chloride ion content of less than 0.40 lb/cu yd (0.24 kg/cu m). The test shall be performed according to ASTM C 1218, and the grout shall have an age of 28 to 42 days at the time of test. The ASTM C 1218 test shall be performed by an independent lab a minimum of once every five years, and the test results shall be provided to the Department. Mixing of the nonshrink grout shall be according to the manufacturer’s specifications. The Department will maintain a qualified product list.”

Revise Article 1029.02 of the Standard Specifications to read:

“ **1029.02 Materials.** Materials shall be according to the following.

| Item | Article/Section |
|--|-----------------|
| (a) Cement..... | 1001 |
| (b) Fly Ash..... | 1010 |
| (c) Ground Granulated Blast Furnace (GGBF) Slag..... | 1010 |
| (d) Water | 1002 |
| (e) Fine Aggregate | 1003 |
| (f) Concrete Admixtures | 1021 |
| (g) Foaming Agent (Note 1) | |

Note 1. The manufacturer shall submit infrared spectrophotometer trace and test results indicating the foaming agent meets the requirements of ASTM C 869 in order to be on the Department’s qualified product list. Submitted data/results shall not be more than five years old.”

Revise the second paragraph of Article 1103.03(a)(4) the Standard Specifications to read:

“The dispenser system shall provide a visual indication that the liquid admixture is actually entering the batch, such as via a transparent or translucent section of tubing or by independent check with an integrated secondary metering device. If approved by the Engineer, an alternate indicator may be used for admixtures dosed at rates of 25 oz/cwt (1630 mL/100 kg) or greater, such as accelerating admixtures, corrosion inhibitors, and viscosity modifying admixtures.”

Revise the first two sections of Check Sheet #11 of the Supplemental Specifications and Recurring Special Provisions to read:

“Description. This work shall consist of filling voids beneath rigid and composite pavements with cement grout.

Materials. Materials shall be according to the following Articles of Division 1000 - Materials of the Standard Specifications:

| Item | Article/Section |
|---|-----------------|
| (a) Cement | 1001 |
| (b) Water | 1002 |
| (c) Fly Ash | 1010 |
| (d) Ground Granulated Blast Furnace (GGBF) Slag..... | 1010 |
| (e) Admixtures | 1021 |
| (f) Packaged Rapid Hardening Mortar or Concrete | 1018” |

Revise the third paragraph of Materials Note 2 of Check Sheet #28 of the Supplemental Specifications and Recurring Special Provisions to read:

“The Department will maintain a qualified product list of synthetic fibers, which will include the minimum required dosage rate. For the minimum required fiber dosage rate based on the Illinois Modified ASTM C 1609 test, a report prepared by an independent laboratory accredited by AASHTO re:source for Portland Cement Concrete shall be provided. The

report shall show results of tests conducted no more than five years prior to the time of submittal.”

COMPENSABLE DELAY COSTS (BDE)

Effective: June 2, 2017

Revised: April 1, 2019

Revise Article 107.40(b) of the Standard Specifications to read:

“(b) Compensation. Compensation will not be allowed for delays, inconveniences, or damages sustained by the Contractor from conflicts with facilities not meeting the above definition; or if a conflict with a utility in an unanticipated location does not cause a shutdown of the work or a documentable reduction in the rate of progress exceeding the limits set herein. The provisions of Article 104.03 notwithstanding, compensation for delays caused by a utility in an unanticipated location will be paid according to the provisions of this Article governing minor and major delays or reduced rate of production which are defined as follows.

- (1) Minor Delay. A minor delay occurs when the work in conflict with the utility in an unanticipated location is completely stopped for more than two hours, but not to exceed two weeks.
- (2) Major Delay. A major delay occurs when the work in conflict with the utility in an unanticipated location is completely stopped for more than two weeks.
- (3) Reduced Rate of Production Delay. A reduced rate of production delay occurs when the rate of production on the work in conflict with the utility in an unanticipated location decreases by more than 25 percent and lasts longer than seven calendar days.”

Revise Article 107.40(c) of the Standard Specifications to read:

“(c) Payment. Payment for Minor, Major, and Reduced Rate of Production Delays will be made as follows.

- (1) Minor Delay. Labor idled which cannot be used on other work will be paid for according to Article 109.04(b)(1) and (2) for the time between start of the delay and the minimum remaining hours in the work shift required by the prevailing practice in the area.

Equipment idled which cannot be used on other work, and which is authorized to standby on the project site by the Engineer, will be paid for according to Article 109.04(b)(4).

- (2) Major Delay. Labor will be the same as for a minor delay.

Equipment will be the same as for a minor delay, except Contractor-owned equipment will be limited to two weeks plus the cost of move-out to either the Contractor's yard or another job and the cost to re-mobilize, whichever is less. Rental equipment may be

paid for longer than two weeks provided the Contractor presents adequate support to the Department (including lease agreement) to show retaining equipment on the job is the most economical course to follow and in the public interest.

- (3) Reduced Rate of Production Delay. The Contractor will be compensated for the reduced productivity for labor and equipment time in excess of the 25 percent threshold for that portion of the delay in excess of seven calendar days. Determination of compensation will be in accordance with Article 104.02, except labor and material additives will not be permitted.

Payment for escalated material costs, escalated labor costs, extended project overhead, and extended traffic control will be determined according to Article 109.13.”

Revise Article 108.04(b) of the Standard Specifications to read:

“(b) No working day will be charged under the following conditions.

- (1) When adverse weather prevents work on the controlling item.
- (2) When job conditions due to recent weather prevent work on the controlling item.
- (3) When conduct or lack of conduct by the Department or its consultants, representatives, officers, agents, or employees; delay by the Department in making the site available; or delay in furnishing any items required to be furnished to the Contractor by the Department prevents work on the controlling item.
- (4) When delays caused by utility or railroad adjustments prevent work on the controlling item.
- (5) When strikes, lock-outs, extraordinary delays in transportation, or inability to procure critical materials prevent work on the controlling item, as long as these delays are not due to any fault of the Contractor.
- (6) When any condition over which the Contractor has no control prevents work on the controlling item.”

Revise Article 109.09(f) of the Standard Specifications to read:

- “(f) Basis of Payment. After resolution of a claim in favor of the Contractor, any adjustment in time required for the work will be made according to Section 108. Any adjustment in the costs to be paid will be made for direct labor, direct materials, direct equipment, direct jobsite overhead, direct offsite overhead, and other direct costs allowed by the resolution. Adjustments in costs will not be made for interest charges, loss of anticipated profit, undocumented loss of efficiency, home office overhead and unabsorbed overhead other than as allowed by Article 109.13, lost opportunity, preparation of claim expenses and other consequential indirect costs regardless of method of calculation.

The above Basis of Payment is an essential element of the contract and the claim cost recovery of the Contractor shall be so limited.”

Add the following to Section 109 of the Standard Specifications.

“109.13 Payment for Contract Delay. Compensation for escalated material costs, escalated labor costs, extended project overhead, and extended traffic control will be allowed when such costs result from a delay meeting the criteria in the following table.

| Contract Type | Cause of Delay | Length of Delay |
|-----------------|--|---|
| Working Days | Article 108.04(b)(3) or Article 108.04(b)(4) | No working days have been charged for two consecutive weeks. |
| Completion Date | Article 108.08(b)(1) or Article 108.08(b)(7) | The Contractor has been granted a minimum two week extension of contract time, according to Article 108.08. |

Payment for each of the various costs will be according to the following.

- (a) Escalated Material and/or Labor Costs. When the delay causes work, which would have otherwise been completed, to be done after material and/or labor costs have increased, such increases will be paid. Payment for escalated material costs will be limited to the increased costs substantiated by documentation furnished by the Contractor. Payment for escalated labor costs will be limited to those items in Article 109.04(b)(1) and (2), except the 35 percent and 10 percent additives will not be permitted.
- (b) Extended Project Overhead. For the duration of the delay, payment for extended project overhead will be paid as follows.
 - (1) Direct Jobsite and Offsite Overhead. Payment for documented direct jobsite overhead and documented direct offsite overhead, including onsite supervisory and administrative personnel, will be allowed according to the following table.

| Original Contract Amount | Supervisory and Administrative Personnel |
|--|---|
| Up to \$5,000,000 | One Project Superintendent |
| Over \$ 5,000,000 - up to \$25,000,000 | One Project Manager, One Project Superintendent or Engineer, and One Clerk |
| Over \$25,000,000 - up to \$50,000,000 | One Project Manager, One Project Superintendent, One Engineer, and One Clerk |
| Over \$50,000,000 | One Project Manager, Two Project Superintendents, One Engineer, and One Clerk |

- (2) Home Office and Unabsorbed Overhead. Payment for home office and unabsorbed overhead will be calculated as 8 percent of the total delay cost.

- (c) Extended Traffic Control. Traffic control required for an extended period of time due to the delay will be paid for according to Article 109.04.

When an extended traffic control adjustment is paid under this provision, an adjusted unit price as provided for in Article 701.20(a) for increase or decrease in the value of work by more than ten percent will not be paid.

Upon payment for a contract delay under this provision, the Contractor shall assign subrogation rights to the Department for the Department's efforts of recovery from any other party for monies paid by the Department as a result of any claim under this provision. The Contractor shall fully cooperate with the Department in its efforts to recover from another party any money paid to the Contractor for delay damages under this provision."

CONSTRUCTION AIR QUALITY – DIESEL RETROFIT (BDE)

Effective: June 1, 2010

Revised: January 1, 2025

The reduction of emissions of particulate matter (PM) for off-road equipment shall be accomplished by installing retrofit emission control devices. The term "equipment" refers to diesel fuel powered devices rated at 50 hp and above, to be used on the jobsite in excess of seven calendar days over the course of the construction period on the jobsite (including rental equipment).

Contractor and subcontractor diesel powered off-road equipment assigned to the contract shall be retrofitted according to the table below.

| Horsepower Range | Model Year and Older |
|------------------|----------------------|
| 50-99 | 2003 |
| 100-299 | 2002 |
| 300-599 | 2000 |
| 600-749 | 2001 |
| 750 and up | 2005 |

The retrofit emission control devices shall achieve a minimum PM emission reduction of 50 percent and shall be:

- Included on the U.S. Environmental Protection Agency (USEPA) *Verified Retrofit Technology List* (<https://www.epa.gov/verified-diesel-tech/verified-technologies-list-clean-diesel>), or verified by the California Air Resources Board (CARB) (<http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm>); or
- Retrofitted with a non-verified diesel retrofit emission control device if verified retrofit emission control devices are not available for equipment proposed to be used on the project, and if the Contractor has obtained a performance certification from the retrofit

device manufacturer that the emission control device provides a minimum PM emission reduction of 50 percent.

Note: Large cranes (Crawler mounted cranes) which are responsible for critical lift operations are exempt from installing retrofit emission control devices if such devices adversely affect equipment operation.

Diesel powered off-road equipment with engine ratings of 50 hp and above, which are unable to be retrofitted with verified emission control devices or if performance certifications are not available which will achieve a minimum 50 percent PM reduction, may be granted a waiver by the Department if documentation is provided showing good faith efforts were made by the Contractor to retrofit the equipment.

Construction shall not proceed until the Contractor submits a certified list of the diesel powered off-road equipment that will be used, and as necessary, retrofitted with emission control devices. The list(s) shall include (1) the equipment number, type, make, Contractor/rental company name; and (2) the emission control devices make, model, USEPA or CARB verification number, or performance certification from the retrofit device manufacturer. Equipment reported as fitted with emissions control devices shall be made available to the Engineer for visual inspection of the device installation, prior to being used on the jobsite.

The Contractor shall submit an updated list of retrofitted off-road construction equipment as retrofitted equipment changes or comes on to the jobsite. The addition or deletion of any diesel powered equipment shall be included on the updated list.

If any diesel powered off-road equipment is found to be in non-compliance with any portion of this special provision, the Engineer will issue the Contractor a diesel retrofit deficiency deduction.

Any costs associated with retrofitting any diesel powered off-road equipment with emission control devices shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed. The Contractor's compliance with this notice and any associated regulations shall not be grounds for a claim.

Diesel Retrofit Deficiency Deduction

When the Engineer determines that a diesel retrofit deficiency exists, a daily monetary deduction will be imposed for each calendar day or fraction thereof the deficiency continues to exist. The calendar day(s) will begin when the time period for correction is exceeded and end with the Engineer's written acceptance of the correction. The daily monetary deduction will be \$1,000.00 for each deficiency identified.

The deficiency will be based on lack of diesel retrofit emissions control.

If a Contractor accumulates three diesel retrofit deficiency deductions for the same piece of equipment in a contract period, the Contractor will be shutdown until the deficiency is corrected. Such a shutdown will not be grounds for any extension of the contract time, waiver of penalties, or be grounds for any claim.

DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (BDE)

Effective: September 1, 2000

Revised: January 2, 2025

1. OVERVIEW AND GENERAL OBLIGATION. The Department of Transportation, as a recipient of federal financial assistance, is required to take all necessary and reasonable steps to ensure nondiscrimination in the award and administration of contracts. Consequently, the federal regulatory provisions of 49 CFR Part 26 apply to this contract concerning the utilization of disadvantaged business enterprises. For the purposes of this Special Provision, a disadvantaged business enterprise (DBE) means a business certified in accordance with the requirements of 49 CFR Part 26 and listed in the Illinois Unified Certification Program (IL UCP) DBE Directory. Award of the contract is conditioned on meeting the requirements of 49 CFR Part 26, and failure by the Contractor to carry out the requirements of Part 26 is a material breach of the contract and may result in the termination of the contract or such other remedies as the Department deems appropriate.
2. CONTRACTOR ASSURANCE. All assurances set forth in FHWA 1273 are hereby incorporated by reference and will be physically attached to the final contract and all subcontracts.
3. CONTRACT GOAL TO BE ACHIEVED BY THE CONTRACTOR. The Department has determined the work of this contract has subcontracting opportunities that may be suitable for performance by DBE companies and that, in the absence of unlawful discrimination and in an arena of fair and open competition, DBE companies can be expected to perform **0.00 %** of the work. This percentage is set as the DBE participation goal for this contract. Consequently, in addition to the other award criteria established for this contract, the Department will only award this contract to a bidder who makes a good faith effort to meet this goal of DBE participation in the performance of the work in accordance with the requirements of 49 CFR 26.53 and SBE Memorandum No. 24-02.
4. IDENTIFICATION OF CERTIFIED DBE. Information about certified DBE Contractors can be found in the Illinois UCP Directory. Bidders can obtain additional information and assistance with identifying DBE-certified companies at the Department's website or by contacting the Department's Bureau of Small Business Enterprises at (217) 785-4611.
5. BIDDING PROCEDURES. Compliance with this Special Provision and SBE Policy Memorandum 24-02 is a material bidding requirement. The following shall be included with the bid.
 - (a) DBE Utilization Plan (form SBE 2026) documenting enough DBE participation has been obtained to meet the goal, or a good faith effort has been made to meet the goal even though the efforts did not succeed in obtaining enough DBE participation to meet the goal.
 - (b) Applicable DBE Participation Statement (form SBE 2023, 2024, and/or 2025) for each DBE firm the bidder has committed to perform the work to achieve the contract goal.

The required forms and documentation shall be submitted as a single .pdf file using the "Integrated Contractor Exchange (iCX)" application within the Department's "EBids System".

The Department will not accept a bid if it does not meet the bidding procedures set forth herein and the bid will be declared non-responsive. A bidder declared non-responsive for failure to meet the bidding procedures will not give rise to an administrative reconsideration. In the event the bid is declared non-responsive, the Department may elect to cause the forfeiture of

the penal sum of the bidder's proposal guaranty and may deny authorization to bid the project if re-advertised for bids.

6. UTILIZATION PLAN EVALUATION. The contract will not be awarded until the Utilization Plan is approved. All information submitted by the bidder must be complete, accurate, and adequately document the bidder has committed to DBE participation sufficient to meet the goal, or that the bidder has made good faith efforts to do so, in the event the bidder cannot meet the goal, in order for the Department to commit to the performance of the contract by the bidder.

The Utilization Plan will be approved by the Department if the Utilization Plan documents sufficient commercially useful DBE work to meet the contract goal or the Department determines, based upon the documentation submitted, that the bidder has made a good faith effort to meet the contract goal pursuant to 49 CFR Part 26, Appendix A and the requirements of SBE 2026.

If the Department determines that a good faith effort has not been made, the Department will notify the responsible company official designated in the Utilization Plan of that determination in accordance with SBE Policy Memorandum 24-02.

7. CALCULATING DBE PARTICIPATION. The Utilization Plan values represent work the bidder commits to have performed by the specified DBEs and paid for upon satisfactory completion. The Department is only able to count toward the achievement of the overall goal and the contract goal the value of payments made for the work actually performed by DBE firms. In addition, a DBE must perform a commercially useful function on the contract to be counted. A commercially useful function is generally performed when the DBE is responsible for the work and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. The Department and Contractor are governed by the provisions of 49 CFR Part 26.55(c) on questions of commercially useful functions as it affects the work. Specific guidelines for counting goal credit are provided in 49 CFR Part 26.55. In evaluating Utilization Plans for award the Department will count goal credit as set forth in Part 26 and in accordance with SBE Policy Memorandum 24-02.
8. CONTRACT COMPLIANCE. The Contractor must utilize the specific DBEs listed to perform the work and supply the materials for which each DBE is listed in the Contractor's approved Utilization Plan, unless the Contractor obtains the Department's written consent to terminate the DBE or any portion of its work. The DBE Utilization Plan approved by SBE is a condition-of-award, and any deviation to that Utilization Plan, the work set forth therein to be performed by DBE firms, or the DBE firms specified to perform that work, must be approved, in writing, by the Department in accordance with federal regulatory requirements. Deviation from the DBE Utilization Plan condition-of-award without such written approval is a violation of the contract and may result in termination of the contract or such other remedy the Department deems appropriate. The following administrative procedures and remedies govern the compliance by the Contractor with the contractual obligations established by the Utilization Plan.
 - (a) NOTICE OF DBE PERFORMANCE. The Contractor shall provide the Engineer with at least three days advance notice of when all DBE firms are expected to perform the work committed under the Contractor's Utilization Plan.

- (b) **SUBCONTRACT.** If awarded the contract, the Contractor is required to enter into written subcontracts with all DBE firms indicated in the approved Utilization Plan and must provide copies of fully executed DBE subcontracts to the Department upon request. Subcontractors shall ensure that all lower tier subcontracts or agreements with DBEs to supply labor or materials be performed in accordance with this Special Provision.
- (c) **PAYMENT TO DBE FIRMS.** The Department is prohibited by federal regulations from crediting the participation of a DBE included in the Utilization Plan toward either the contract goal or the Department's overall goal until the amount to be applied toward the goal has been paid to the DBE. The Contractor shall document and report all payments for work performed by DBE certified firms in accordance with Article 109.11 of the Standard Specifications. All records of payment for work performed by DBE certified firms shall be made available to the Department upon request.
- (d) **FINAL PAYMENT.** After the performance of the final item of work or trucking, or delivery of material by a DBE and final payment to the DBE by the Contractor, but not later than 30 calendar days after payment has been made by the Department to the Contractor for such work or material, the Contractor shall submit a DBE Payment Agreement (form SBE 2115) to the Engineer. If the Contractor does not have the full amount of work indicated in the Utilization Plan performed by the DBE companies indicated in the Utilization Plan and after good faith efforts are reviewed, the Department may deduct from contract payments to the Contractor the amount of the goal not achieved as liquidated and ascertained damages.
- (g) **ENFORCEMENT.** The Department reserves the right to withhold payment to the Contractor to enforce the provisions of this Special Provision. Final payment shall not be made on the contract until such time as the Contractor submits sufficient documentation demonstrating achievement of the goal in accordance with this Special Provision or after liquidated damages have been determined and collected.

FUEL COST ADJUSTMENT (BDE)

Effective: April 1, 2009

Revised: August 1, 2017

Description. Fuel cost adjustments will be made to provide additional compensation to the Contractor, or a credit to the Department, for fluctuations in fuel prices when optioned by the Contractor. The bidder shall indicate with their bid whether or not this special provision will be part of the contract. Failure to indicate "Yes" for any category of work will make that category of work exempt from fuel cost adjustment.

General. The fuel cost adjustment shall apply to contract pay items as grouped by category. The adjustment shall only apply to those categories of work checked "Yes", and only when the cumulative plan quantities for a category exceed the required threshold. Adjustments to work items in a category, either up or down, and extra work paid for by agreed unit price will be subject to fuel cost adjustment only when the category representing the added work was subject to the fuel cost adjustment. Extra work paid for at a lump sum price or by force account will not be subject to fuel cost adjustment. Category descriptions and thresholds for application and the fuel usage factors which are applicable to each are as follows:

(a) Categories of Work.

- (1) Category A: Earthwork. Contract pay items performed under Sections 202, 204, and 206 including any modified standard or nonstandard items where the character of the work to be performed is considered earthwork. The cumulative total of all applicable item plan quantities shall exceed 25,000 cu yd (20,000 cu m). Included in the fuel usage factor is a weighted average 0.10 gal/cu yd (0.50 liters/cu m) factor for trucking.
- (2) Category B: Subbases and Aggregate Base Courses. Contract pay items constructed under Sections 311, 312 and 351 including any modified standard or nonstandard items where the character of the work to be performed is considered construction of a subbase or aggregate, stabilized or modified base course. The cumulative total of all applicable item plan quantities shall exceed 5000 tons (4500 metric tons). Included in the fuel usage factor is a 0.60 gal/ton (2.50 liters/metric ton) factor for trucking.
- (3) Category C: Hot-Mix Asphalt (HMA) Bases, Pavements and Shoulders. Contract pay items constructed under Sections 355, 406, 407 and 482 including any modified standard or nonstandard items where the character of the work to be performed is considered HMA bases, pavements and shoulders. The cumulative total of all applicable item plan quantities shall exceed 5000 tons (4500 metric tons). Included in the fuel usage factor is 0.60 gal/ton (2.50 liters/metric ton) factor for trucking.
- (4) Category D: Portland Cement Concrete (PCC) Bases, Pavements and Shoulders. Contract pay items constructed under Sections 353, 420, 421 and 483 including any modified standard or nonstandard items where the character of the work to be performed is considered PCC base, pavement or shoulder. The cumulative total of all applicable item plan quantities shall exceed 7500 sq yd (6000 sq m). Included in the fuel usage factor is 1.20 gal/cu yd (5.94 liters/cu m) factor for trucking.
- (5) Category E: Structures. Structure items having a cumulative bid price that exceeds \$250,000 for pay items constructed under Sections 502, 503, 504, 505, 512, 516 and 540 including any modified standard or nonstandard items where the character of the work to be performed is considered structure work when similar to that performed under these sections and not included in categories A through D.

(b) Fuel Usage Factors.

English Units

| Category | Factor | Units |
|--|--------|--------------|
| A - Earthwork | 0.34 | gal / cu yd |
| B – Subbase and Aggregate Base courses | 0.62 | gal / ton |
| C – HMA Bases, Pavements and Shoulders | 1.05 | gal / ton |
| D – PCC Bases, Pavements and Shoulders | 2.53 | gal / cu yd |
| E – Structures | 8.00 | gal / \$1000 |

Metric Units

| Category | Factor | Units |
|--|--------|---------------------|
| A - Earthwork | 1.68 | liters / cu m |
| B – Subbase and Aggregate Base courses | 2.58 | liters / metric ton |

| | | |
|--|-------|---------------------|
| C – HMA Bases, Pavements and Shoulders | 4.37 | liters / metric ton |
| D – PCC Bases, Pavements and Shoulders | 12.52 | liters / cu m |
| E – Structures | 30.28 | liters / \$1000 |

(c) Quantity Conversion Factors.

| Category | Conversion | Factor |
|----------|--------------------|--------------------------------------|
| B | sq yd to ton | 0.057 ton / sq yd / in depth |
| | sq m to metric ton | 0.00243 metric ton / sq m / mm depth |
| C | sq yd to ton | 0.056 ton / sq yd / in depth |
| | sq m to metric ton | 0.00239 m ton / sq m / mm depth |
| D | sq yd to cu yd | 0.028 cu yd / sq yd / in depth |
| | sq m to cu m | 0.001 cu m / sq m / mm depth |

Method of Adjustment. Fuel cost adjustments will be computed as follows.

$$CA = (FPI_P - FPI_L) \times FUF \times Q$$

Where: CA = Cost Adjustment, \$
 FPI_P = Fuel Price Index, as published by the Department for the month the work is performed, \$/gal (\$/liter)
 FPI_L = Fuel Price Index, as published by the Department for the month prior to the letting for work paid for at the contract price; or for the month the agreed unit price letter is submitted by the Contractor for extra work paid for by agreed unit price, \$/gal (\$/liter)
 FUF = Fuel Usage Factor in the pay item(s) being adjusted
 Q = Authorized construction Quantity, tons (metric tons) or cu yd (cu m)

The entire FUF indicated in paragraph (b) will be used regardless of use of trucking to perform the work.

Basis of Payment. Fuel cost adjustments may be positive or negative but will only be made when there is a difference between the FPI_L and FPI_P in excess of five percent, as calculated by:

$$\text{Percent Difference} = \{(FPI_L - FPI_P) \div FPI_L\} \times 100$$

Fuel cost adjustments will be calculated for each calendar month in which applicable work is performed; and will be paid or deducted when all other contract requirements for the items of work are satisfied. The adjustments shall not apply during contract time subject to liquidated damages for completion of the entire contract.

HOT-MIX ASPHALT – LONGITUDINAL JOINT SEALANT (BDE)

Effective: November 1, 2022

Revised: August 1, 2023

Add the following after the second sentence in the eighth paragraph of Article 406.06(h)(2) of the Standard Specifications:

“If rain is forecasted and traffic is to be on the LJS or if pickup/tracking of the LJS material is likely, the LJS shall be covered immediately following its application with FA 20 fine aggregate mechanically spread uniformly at a rate of 1.5 ± 0.5 lb/sq yd (0.75 ± 0.25 kg/sq m). Fine aggregate landing outside of the LJS shall be removed prior to application of tack coat.”

Add the following after the first sentence in the ninth paragraph of Article 406.06(h)(2) of the Standard Specifications:

“LJS half-width shall be applied at a width of 9 ± 1 in. (225 ± 25 mm) in the immediate lane to be placed with the outside edge flush with the joint of the next HMA lift. The vertical face of any longitudinal joint remaining in place shall also be coated.”

Add the following after the eleventh paragraph of Article 406.06(h)(2) of the Standard Specifications:

| “LJS Half-Width Application Rate, lb/ft (kg/m) ^{1/} | | | |
|--|---|--------------------------------------|---------------------------------------|
| Lift Thickness, in. (mm) | Coarse Graded Mixture (IL-19.0, IL-19.0L, IL-9.5, IL-9.5L, IL-4.75) | Fine Graded Mixture (IL-9.5FG) | SMA Mixture (SMA-9.5, SMA-12.5) |
| $\frac{3}{4}$ (19) | 0.44 (0.66) | | |
| 1 (25) | 0.58 (0.86) | | |
| 1 $\frac{1}{4}$ (32) | 0.66 (0.98) | 0.44 (0.66) | |
| 1 $\frac{1}{2}$ (38) | 0.74 (1.10) | 0.48 (0.71) | 0.63 (0.94) |
| 1 $\frac{3}{4}$ (44) | 0.82 (1.22) | 0.52 (0.77) | 0.69 (1.03) |
| 2 (50) | 0.90 (1.34) | 0.56 (0.83) | 0.76 (1.13) |
| $\geq 2 \frac{1}{4}$ (60) | 0.98 (1.46) | | |

1/ The application rate includes a surface demand for liquid. The thickness of the LJS may taper from the center of the application to a lesser thickness on the edge of the application, provided the correct width and application rate are maintained.”

Revise the second paragraph of Article 406.13(b) of the Standard Specifications to read:

“Aggregate for covering tack, LJS, or FLS will not be measured for payment.”

Add the following to the end of the second paragraph of Article 406.14 of the Standard Specifications:

“Longitudinal joint sealant (LJS) half-width will be paid for at the contract unit price per foot (meter) for LONGITUDINAL JOINT SEALANT, HALF-WIDTH.”

MECHANICALLY STABILIZED EARTH RETAINING WALLS (BDE)

Effective: August 1, 2023

Revise the second sentence of Articles 1003.07(d) and 1004.06(d) of the Standard Specifications to read:

“The Illinois Modified AASHTO T 296 test with pore pressure measurement may be used in lieu of AASHTO T 236.”

Add the following to Article 522.02 of the Standard Specifications:

“(s) Metal Hardware Cast into Concrete 1006.13”

PAVEMENT MARKING INSPECTION (BDE)

Effective: April 1, 2025

Revise the second sentence of the first paragraph of Article 780.13 of the Standard Specifications to read:

“In addition, thermoplastic, preformed plastic, epoxy, preformed thermoplastic, polyurea, and modified urethane pavement markings will be inspected following a winter performance period that extends from November 15 to April 1 of the next year.”

PERFORMANCE GRADED ASPHALT BINDER (BDE)

Effective: January 1, 2023

Revise Article 1032.05 of the Standard Specifications to read:

“1032.05 Performance Graded Asphalt Binder. These materials will be accepted according to the Bureau of Materials Policy Memorandum, “Performance Graded Asphalt Binder Qualification Procedure.” The Department will maintain a qualified producer list. These materials shall be free from water and shall not foam when heated to any temperature below the actual flash point. Air blown asphalt, recycle engine oil bottoms (ReOB), and polyphosphoric acid (PPA) modification shall not be used.

When requested, producers shall provide the Engineer with viscosity/temperature relationships for the performance graded asphalt binders delivered and incorporated in the work.

- (a) Performance Graded (PG) Asphalt Binder. The asphalt binder shall meet the requirements of AASHTO M 320, Table 1 “Standard Specification for Performance Graded Asphalt Binder” for the grade shown on the plans and the following.

| Test | Parameter |
|---|------------|
| Small Strain Parameter (AASHTO PP 113) BBR, ΔT_c , 40 hrs PAV (40 hrs continuous or 2 PAV at 20 hrs) | -5 °C min. |

- (b) Modified Performance Graded (PG) Asphalt Binder. The asphalt binder shall meet the requirements of AASHTO M 320, Table 1 "Standard Specification for Performance Graded Asphalt Binder" for the grade shown on the plans.

Asphalt binder modification shall be performed at the source, as defined in the Bureau of Materials Policy Memorandum, "Performance Graded Asphalt Binder Qualification Procedure."

Modified asphalt binder shall be safe to handle at asphalt binder production and storage temperatures or HMA construction temperatures. Safety Data Sheets (SDS) shall be provided for all asphalt modifiers.

- (1) Polymer Modification (SB/SBS or SBR). Elastomers shall be added to the base asphalt binder to achieve the specified performance grade and shall be either a styrene-butadiene diblock, triblock copolymer without oil extension, or a styrene-butadiene rubber. The polymer modified asphalt binder shall be smooth, homogeneous, and be according to the requirements shown in Table 1 or 2 for the grade shown on the plans.

| Table 1 - Requirements for Styrene-Butadiene Copolymer (SB/SBS) Modified Asphalt Binders | | |
|---|---|---|
| Test | Asphalt Grade SB/SBS PG 64-28 SB/SBS PG 70-22 | Asphalt Grade SB/SBS PG 64-34 SB/SBS PG 70-28 SB/SBS PG 76-22 SB/SBS PG 76-28 |
| Separation of Polymer ITP, "Separation of Polymer from Asphalt Binder" Difference in °F (°C) of the softening point between top and bottom portions | 4 (2) max. | 4 (2) max. |
| TESTS ON RESIDUE FROM ROLLING THIN FILM OVEN TEST (AASHTO T 240) | | |
| Elastic Recovery ASTM D 6084, Procedure A, 77 °F (25 °C), 100 mm elongation, % | 60 min. | 70 min. |

| Table 2 - Requirements for Styrene-Butadiene Rubber (SBR) Modified Asphalt Binders | | |
|---|---|---|
| Test | Asphalt Grade SBR PG 64-28 SBR PG 70-22 | Asphalt Grade SB/SBS PG 64-34 SB/SBS PG 70-28 SBR PG 76-22 SBR PG 76-28 |
| Separation of Polymer ITP, "Separation of Polymer from Asphalt Binder" Difference in °F (°C) of the softening point between top and bottom portions | 4 (2) max. | 4 (2) max. |
| Toughness ASTM D 5801, 77 °F (25 °C), 20 in./min. (500 mm/min.), in.-lbs (N-m) | 110 (12.5) min. | 110 (12.5) min. |
| Tenacity ASTM D 5801, 77 °F (25 °C), 20 in./min. (500 mm/min.), in.-lbs (N-m) | 75 (8.5) min. | 75 (8.5) min. |
| TESTS ON RESIDUE FROM ROLLING THIN FILM OVEN TEST (AASHTO T 240) | | |
| Elastic Recovery ASTM D 6084, Procedure A, 77 °F (25 °C), 100 mm elongation, % | 40 min. | 50 min. |

- (2) Ground Tire Rubber (GTR) Modification. GTR modification is the addition of recycled ground tire rubber to liquid asphalt binder to achieve the specified performance grade. GTR shall be produced from processing automobile and/or truck tires by the ambient grinding method or micronizing through a cryogenic process. GTR shall not exceed 1/16 in. (2 mm) in any dimension and shall not contain free metal particles, moisture that would cause foaming of the asphalt, or other foreign materials. A mineral powder

(such as talc) meeting the requirements of AASHTO M 17 may be added, up to a maximum of four percent by weight of GTR to reduce sticking and caking of the GTR particles. When tested in accordance with Illinois Modified AASHTO T 27 “Standard Method of Test for Sieve Analysis of Fine and Coarse Aggregates” or AASHTO PP 74 “Standard Practice for Determination of Size and Shape of Glass Beads Used in Traffic Markings by Means of Computerized Optical Method”, a 50 g sample of the GTR shall conform to the following gradation requirements.

| Sieve Size | Percent Passing |
|------------------|-----------------|
| No. 16 (1.18 mm) | 100 |
| No. 30 (600 µm) | 95 ± 5 |
| No. 50 (300 µm) | > 20 |

GTR modified asphalt binder shall be tested for rotational viscosity according to AASHTO T 316 using spindle S27. GTR modified asphalt binder shall be tested for original dynamic shear and RTFO dynamic shear according to AASHTO T 315 using a gap of 2 mm.

The GTR modified asphalt binder shall meet the requirements of Table 3.

| Table 3 - Requirements for Ground Tire Rubber (GTR) Modified Asphalt Binders | | |
|--|---|---|
| Test | Asphalt Grade GTR PG 64-28 GTR PG 70-22 | Asphalt Grade GTR PG 76-22 GTR PG 76-28 GTR PG 70-28 |
| TESTS ON RESIDUE FROM ROLLING THIN FILM OVEN TEST (AASHTO T 240) | | |
| Elastic Recovery ASTM D 6084, Procedure A, 77 °F (25 °C), 100 mm elongation, % | 60 min. | 70 min. |

- (3) Softener Modification (SM). Softener modification is the addition of organic compounds, such as engineered flux, bio-oil blends, modified vegetable oils, glycol amines, and fatty acid derivatives, to the base asphalt binder to achieve the specified performance grade. Softeners shall be dissolved, dispersed, or reacted in the asphalt binder to enhance its performance and shall remain compatible with the asphalt binder with no separation. Softeners shall not be added to modified PG asphalt binder as defined in Articles 1032.05(b)(1) or 1032.05(b)(2).

An Attenuated Total Reflectance-Fourier Transform Infrared spectrum (ATR-FTIR) shall be collected for both the softening compound as well as the softener modified asphalt binder at the dose intended for qualification. The ATR-FTIR spectra shall be collected on unaged softener modified binder, 20-hour Pressurized Aging Vessel (PAV) aged softener modified binder, and 40-hour PAV aged softener modified binder. The ATR-FTIR shall be collected in accordance with Illinois Test Procedure 601. The electronic files spectral files (in one of the following extensions or equivalent: *.SPA,

*.SPG, *.IRD, *.IFG, *.CSV, *.SP, *.IRS, *.GAML, *.[0-9], *.IGM, *.ABS, *.DRT, *.SBM, *.RAS) shall be submitted to the Central Bureau of Materials.

Softener modified asphalt binders shall meet the requirements in Table 4.

| Table 4 - Requirements for Softener Modified Asphalt Binders | | |
|---|---------------|-------------|
| Test | Asphalt Grade | |
| | SM PG 46-28 | SM PG 46-34 |
| | SM PG 52-28 | SM PG 52-34 |
| | SM PG 58-22 | SM PG 58-28 |
| | SM PG 64-22 | |
| Small Strain Parameter (AASHTO PP 113) BBR, ΔT_c , 40 hrs PAV (40 hrs continuous or 2 PAV at 20 hrs) | -5°C min. | |
| Large Strain Parameter (Illinois Modified AASHTO T 391) DSR/LAS Fatigue Property, $\Delta G^* _{peak}$, 40 hrs PAV (40 hrs continuous or 2 PAV at 20 hrs) | ≥ 54 % | |

The following grades may be specified as tack coats.

| Asphalt Grade | Use |
|------------------------------|------------|
| PG 58-22, PG 58-28, PG 64-22 | Tack Coat" |

Revise Article 1031.06(c)(1) and 1031.06(c)(2) of the Standard Specifications to read:

“(1) RAP/RAS. When RAP is used alone or RAP is used in conjunction with RAS, the percentage of virgin ABR shall not exceed the amounts listed in the following table.

| HMA Mixtures - RAP/RAS Maximum ABR % ^{1/2/} | | | |
|--|--------|---------|---|
| Ndesign | Binder | Surface | Polymer Modified Binder or Surface ^{3/} |
| 30 | 30 | 30 | 10 |
| 50 | 25 | 15 | 10 |
| 70 | 15 | 10 | 10 |
| 90 | 10 | 10 | 10 |

1/ For Low ESAL HMA shoulder and stabilized subbase, the RAP/RAS ABR shall not exceed 50 percent of the mixture.

2/ When RAP/RAS ABR exceeds 20 percent, the high and low virgin asphalt binder grades shall each be reduced by one grade (i.e. 25 percent ABR would require a virgin asphalt binder grade of PG 64-22 to be reduced to a PG 58-28).

3/ The maximum ABR percentages for ground tire rubber (GTR) modified mixes shall be equivalent to the percentages specified for SBS/SBR polymer modified mixes.

- (2) FRAP/RAS. When FRAP is used alone or FRAP is used in conjunction with RAS, the percentage of virgin asphalt binder replacement shall not exceed the amounts listed in the following table.

| HMA Mixtures - FRAP/RAS Maximum ABR % ^{1/ 2/} | | | |
|--|--------|---------|--|
| Ndesign | Binder | Surface | Polymer Modified Binder or Surface ^{3/} |
| 30 | 55 | 45 | 15 |
| 50 | 45 | 40 | 15 |
| 70 | 45 | 35 | 15 |
| 90 | 45 | 35 | 15 |
| SMA | - - | - - | 25 |
| IL-4.75 | - - | - - | 35 |

- 1/ For Low ESAL HMA shoulder and stabilized subbase, the FRAP/RAS ABR shall not exceed 50 percent of the mixture.
- 2/ When FRAP/RAS ABR exceeds 20 percent for all mixes, the high and low virgin asphalt binder grades shall each be reduced by one grade (i.e. 25 percent ABR would require a virgin asphalt binder grade of PG 64-22 to be reduced to a PG 58-28).
- 3/ The maximum ABR percentages for GTR modified mixes shall be equivalent to the percentages specified for SBS/SBR polymer modified mixes.”

Add the following to the end of Note 2 of Article 1030.03 of the Standard Specifications.

“A dedicated storage tank for the ground tire rubber (GTR) modified asphalt binder shall be provided. This tank shall be capable of providing continuous mechanical mixing throughout and/or recirculation of the asphalt binder to provide a uniform mixture. The tank shall be heated and capable of maintaining the temperature of the asphalt binder at 300 °F to 350 °F (149 °C to 177 °C). The asphalt binder metering systems of dryer drum plants shall be calibrated with the actual GTR modified asphalt binder material with an accuracy of ± 0.40 percent.”

PREFORMED PLASTIC PAVEMENT MARKING (BDE)

Effective: June 2, 2024

Revise Article 1095.03(h) of the Standard Specifications to read:

- “(h) Glass Beads. Glass beads shall be colorless and uniformly distributed throughout the yellow and white portions of the material only. A top coating of beads shall be bonded to or directly embedded into the surface of the markings such that the beads are not easily removed when the film is scratched firmly with a thumb nail.

The glass bead refractive index shall be tested using the liquid immersion method.

Type B material shall have an inner mix of glass beads with a minimum refractive index of 1.50 and a top coating of ceramic beads bonded to top urethane wear surface with a minimum refractive index of 1.70. Beads with a refractive index greater than 1.80 shall not be used.

Type C material shall have glass beads with a minimum refractive index of 1.50 and a layer of skid resistant ceramic particles bonded to the top urethane wear surface. The urethane wear surface shall have a nominal thickness of 5 mils (0.13 mm)."

Revise Article 1095.03(n) of the Standard Specifications to read:

"(n) Sampling and Inspection.

- (1) Sample. Prior to approval and use of preformed plastic pavement markings, the manufacturer shall submit a notarized certification from an independent laboratory, together with the results of all tests, stating that the material meets the requirements as set forth herein. The independent laboratory test report shall state the lot tested, the manufacturer's name, and the date of manufacture.

After initial approval by the Department, samples and certification by the manufacturer shall be submitted for each subsequent batch used. The manufacturer shall submit a certification stating that the material meets the requirements as set forth herein and is essentially identical to the material sent for qualification. The certification shall state the lot tested, the manufacturer's name, and the date of manufacture.

- (2) Inspection. The Contractor shall provide a manufacturer's certification to the Engineer stating the material meets all requirements of this specification. All material samples for acceptance tests will be taken or witnessed by a representative of the Bureau of Materials and will be submitted to the Engineer of Materials, 126 East Ash Street, Springfield, Illinois 62704-4766 at least 30 days in advance of the pavement marking operations."

REMOVAL AND DISPOSAL OF REGULATED SUBSTANCES (BDE)

Effective: January 1, 2024

Revised: April 1, 2024

Revise the first paragraph of Article 669.04 of the Standard Specifications to read:

"669.04 Regulated Substances Monitoring. Regulated substances monitoring includes environmental observation and field screening during regulated substances management activities. The excavated soil and groundwater within the work areas shall be managed as either uncontaminated soil, hazardous waste, special waste, or non-special waste.

As part of the regulated substances monitoring, the monitoring personnel shall perform and document the applicable duties listed on form BDE 2732 "Regulated Substances Monitoring Daily Record (RSMDR)".

Revise the first two sentences of the nineteenth paragraph of Article 669.05 of the Standard Specifications to read:

"The Contractor shall coordinate waste disposal approvals with the disposal facility and provide the specific analytical testing requirements of that facility. The Contractor shall make all arrangements for collection, transportation, and analysis of landfill acceptance testing."

Revise the last paragraph of Article 669.05 of the Standard Specifications to read:

"The Contractor shall select a permitted landfill facility or CCDD/USFO facility meeting the requirements of 35 Ill. Admin. Code Parts 810-814 or Part 1100, respectively. The Department will review and approve or reject the facility proposed by the Contractor based upon information provided in BDE 2730. The Contractor shall verify whether the selected facility is compliant with those applicable standards as mandated by their permit and whether the facility is presently, has previously been, or has never been, on the United States Environmental Protection Agency (U.S. EPA) National Priorities List or the Resource Conservation and Recovery Act (RCRA) List of Violating Facilities. The use of a Contractor selected facility shall in no manner delay the construction schedule or alter the Contractor's responsibilities as set forth."

Revise the first paragraph of Article 669.07 of the Standard Specifications to read:

"669.07 Temporary Staging. Soil classified according to Articles 669.05(a)(2), (b)(1), or (c) may be temporarily staged at the Contractor's option. All other soil classified according to Articles 669.05(a)(1), (a)(3), (a)(4), (a)(5), (a)(6), or (b)(2) shall be managed and disposed of without temporary staging to the greatest extent practicable. If circumstances beyond the Contractor's control require temporary staging of these latter materials, the Contractor shall request approval from the Engineer in writing.

Topsoil for re-use as final cover which has been field screened and found not to exhibit PID readings over daily background readings as documented on the BDE 2732, visual staining or odors, and is classified according to Articles 669.05(a)(2), (a)(3), (a)(4), (b)(1), or (c) may be temporarily staged at the Contractor's option."

Add the following paragraph after the sixth paragraph of Article 669.11 of the Standard Specifications.

"The sampling and testing of effluent water derived from dewatering discharges for priority pollutants volatile organic compounds (VOCs), priority pollutants semi-volatile organic compounds (SVOCs), or priority pollutants metals, will be paid for at the contract unit price per each for VOCS GROUNDWATER ANALYSIS using EPA Method 8260B, SVOCs GROUNDWATER ANALYSIS using EPA Method 8270C, or RCRA METALS GROUNDWATER ANALYSIS using EPA Methods 6010B and 7471A. This price shall include transporting the sample from the job site to the laboratory."

Revise the first sentence of the eight paragraph of Article 669.11 of the Standard Specifications to read:

“Payment for temporary staging of soil classified according to Articles 669.05(a)(1), (a)(3), (a)(4), (a)(5), (a)(6), or (b)(2) to be managed and disposed of, if required and approved by the Engineer, will be paid according to Article 109.04.”

SEEDING (BDE)

Effective: November 1, 2022

Revise Article 250.07 of the Standard Specifications to read:

“250.07 Seeding Mixtures. The classes of seeding mixtures and combinations of mixtures will be designated in the plans.

When an area is to be seeded with two or more seeding classes, those mixtures shall be applied separately on the designated area within a seven day period. Seeding shall occur prior to placement of mulch cover. A Class 7 mixture can be applied at any time prior to applying any seeding class or added to them and applied at the same time.

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| TABLE 1 - SEEDING MIXTURES | | | |
|--|---|----------------------|-------|
| Class - Type | Seeds | lb/acre (kg/hectare) | |
| 1 Lawn Mixture 1/ | Kentucky Bluegrass | 100 | (110) |
| | Perennial Ryegrass | 60 | (70) |
| | <i>Festuca rubra</i> ssp. <i>rubra</i> (Creeping Red Fescue) | 40 | (50) |
| 1A Salt Tolerant Lawn Mixture 1/ | Kentucky Bluegrass | 60 | (70) |
| | Perennial Ryegrass | 20 | (20) |
| | <i>Festuca rubra</i> ssp. <i>rubra</i> (Creeping Red Fescue) | 20 | (20) |
| | <i>Festuca brevipilla</i> (Hard Fescue) | 20 | (20) |
| | <i>Puccinellia distans</i> (Fults Saltgrass or Salty Alkaligrass) | 60 | (70) |
| 1B Low Maintenance Lawn Mixture 1/ | Turf-Type Fine Fescue 3/ | 150 | (170) |
| | Perennial Ryegrass | 20 | (20) |
| | Red Top | 10 | (10) |
| | <i>Festuca rubra</i> ssp. <i>rubra</i> (Creeping Red Fescue) | 20 | (20) |
| 2 Roadside Mixture 1/ | <i>Lolium arundinaceum</i> (Tall Fescue) | 100 | (110) |
| | Perennial Ryegrass | 50 | (55) |
| | <i>Festuca rubra</i> ssp. <i>rubra</i> (Creeping Red Fescue) | 40 | (50) |
| | Red Top | 10 | (10) |
| 2A Salt Tolerant Roadside Mixture 1/ | <i>Lolium arundinaceum</i> (Tall Fescue) | 60 | (70) |
| | Perennial Ryegrass | 20 | (20) |
| | <i>Festuca rubra</i> ssp. <i>rubra</i> (Creeping Red Fescue) | 30 | (20) |
| | <i>Festuca brevipilla</i> (Hard Fescue) | 30 | (20) |
| | <i>Puccinellia distans</i> (Fults Saltgrass or Salty Alkaligrass) | 60 | (70) |
| 3 Northern Illinois Slope Mixture 1/ | <i>Elymus canadensis</i> (Canada Wild Rye) 5/ | 5 | (5) |
| | Perennial Ryegrass | 20 | (20) |
| | Alsike Clover 4/ | 5 | (5) |
| | <i>Desmanthus illinoensis</i> (Illinois Bundleflower) 4/ 5/ | 2 | (2) |
| | <i>Schizachyrium scoparium</i> (Little Bluestem) 5/ | 12 | (12) |
| | <i>Bouteloua curtipendula</i> (Side-Oats Grama) 5/ | 10 | (10) |
| | <i>Puccinellia distans</i> (Fults Saltgrass or Salty Alkaligrass) | 30 | (35) |
| | Oats, Spring | 50 | (55) |
| | Slender Wheat Grass 5/ | 15 | (15) |
| | Buffalo Grass 5/ 7/ | 5 | (5) |
| 3A Southern Illinois Slope Mixture 1/ | Perennial Ryegrass | 20 | (20) |
| | <i>Elymus canadensis</i> (Canada Wild Rye) 5/ | 20 | (20) |
| | <i>Panicum virgatum</i> (Switchgrass) 5/ | 10 | (10) |
| | <i>Schizachyrium scoparium</i> (Little Blue Stem) 5/ | 12 | (12) |
| | <i>Bouteloua curtipendula</i> (Side-Oats Grama) 5/ | 10 | (10) |
| | <i>Dalea candida</i> (White Prairie Clover) 4/ 5/ | 5 | (5) |
| | <i>Rudbeckia hirta</i> (Black-Eyed Susan) 5/ | 5 | (5) |
| | Oats, Spring | 50 | (55) |

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| Class – Type | Seeds | lb/acre (kg/hectare) |
|--|---|----------------------|
| 4 Native Grass 2/ 6/ | <i>Andropogon gerardi</i> | 4 (4) |
| | (Big Blue Stem) 5/ | |
| | <i>Schizachyrium scoparium</i> | 5 (5) |
| | (Little Blue Stem) 5/ | |
| | <i>Bouteloua curtipendula</i> | 5 (5) |
| | (Side-Oats Grama) 5/ | |
| | <i>Elymus canadensis</i> | 1 (1) |
| | (Canada Wild Rye) 5/ | |
| | <i>Panicum virgatum</i> (Switch Grass) 5/ | 1 (1) |
| | <i>Sorghastrum nutans</i> (Indian Grass) 5/ | 2 (2) |
| | Annual Ryegrass | 25 (25) |
| 4A Low Profile Native Grass 2/ 6/ | Oats, Spring | 25 (25) |
| | Perennial Ryegrass | 15 (15) |
| | <i>Schizachyrium scoparium</i> | 5 (5) |
| | (Little Blue Stem) 5/ | |
| | <i>Bouteloua curtipendula</i> | 5 (5) |
| | (Side-Oats Grama) 5/ | |
| | <i>Elymus canadensis</i> | 1 (1) |
| | (Canada Wild Rye) 5/ | |
| 4B Wetland Grass and Sedge Mixture 2/ 6/ | <i>Sporobolus heterolepis</i> | 0.5 (0.5) |
| | (Prairie Dropseed) 5/ | |
| | Annual Ryegrass | 25 (25) |
| | Oats, Spring | 25 (25) |
| | Perennial Ryegrass | 15 (15) |
| | Annual Ryegrass | 25 (25) |
| | Oats, Spring | 25 (25) |
| | Wetland Grasses (species below) 5/ | 6 (6) |
| <u>Species:</u> | | <u>% By Weight</u> |
| <i>Calamagrostis canadensis</i> (Blue Joint Grass) | | 12 |
| <i>Carex lacustris</i> (Lake-Bank Sedge) | | 6 |
| <i>Carex slipata</i> (Awl-Fruited Sedge) | | 6 |
| <i>Carex stricta</i> (Tussock Sedge) | | 6 |
| <i>Carex vulpinoidea</i> (Fox Sedge) | | 6 |
| <i>Eleocharis acicularis</i> (Needle Spike Rush) | | 3 |
| <i>Eleocharis obtusa</i> (Blunt Spike Rush) | | 3 |
| <i>Glyceria striata</i> (Fowl Manna Grass) | | 14 |
| <i>Juncus effusus</i> (Common Rush) | | 6 |
| <i>Juncus tenuis</i> (Slender Rush) | | 6 |
| <i>Juncus torreyi</i> (Torrey's Rush) | | 6 |
| <i>Leersia oryzoides</i> (Rice Cut Grass) | | 10 |
| <i>Scirpus acutus</i> (Hard-Stemmed Bulrush) | | 3 |
| <i>Scirpus atrovirens</i> (Dark Green Rush) | | 3 |
| <i>Bolboschoenus fluviatilis</i> (River Bulrush) | | 3 |
| <i>Schoenoplectus tabernaemontani</i> (Softstem Bulrush) | | 3 |
| <i>Spartina pectinata</i> (Cord Grass) | | 4 |

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| Class – Type | Seeds | lb/acre (kg/hectare) |
|--|---|----------------------|
| 5 | Forb with Annuals Mixture (Below) | 1 (1) |
| | Annuals Mixture 2/ 5/ 6/ Forb Mixture (Below) | 10 (10) |
| Annuals Mixture - Mixture not exceeding 25 % by weight of any one species, of the following: | | |
| <i>Coreopsis lanceolata</i> (Sand Coreopsis) | | |
| <i>Leucanthemum maximum</i> (Shasta Daisy) | | |
| <i>Gaillardia pulchella</i> (Blanket Flower) | | |
| <i>Ratibida columnifera</i> (Prairie Coneflower) | | |
| <i>Rudbeckia hirta</i> (Black-Eyed Susan) | | |
| Forb Mixture - Mixture not exceeding 5 % by weight PLS of any one species, of the following: | | |
| <i>Amorpha canescens</i> (Lead Plant) 4/ | | |
| <i>Anemone cylindrica</i> (Thimble Weed) | | |
| <i>Asclepias tuberosa</i> (Butterfly Weed) | | |
| <i>Aster azureus</i> (Sky Blue Aster) | | |
| <i>Symphyotrichum leave</i> (Smooth Aster) | | |
| <i>Aster novae-angliae</i> (New England Aster) | | |
| <i>Baptisia leucantha</i> (White Wild Indigo) 4/ | | |
| <i>Coreopsis palmata</i> (Prairie Coreopsis) | | |
| <i>Echinacea pallida</i> (Pale Purple Coneflower) | | |
| <i>Eryngium yuccifolium</i> (Rattlesnake Master) | | |
| <i>Helianthus mollis</i> (Downy Sunflower) | | |
| <i>Heliopsis helianthoides</i> (Ox-Eye) | | |
| <i>Liatris aspera</i> (Rough Blazing Star) | | |
| <i>Liatris pycnostachya</i> (Prairie Blazing Star) | | |
| <i>Monarda fistulosa</i> (Prairie Bergamot) | | |
| <i>Parthenium integrifolium</i> (Wild Quinine) | | |
| <i>Dalea candida</i> (White Prairie Clover) 4/ | | |
| <i>Dalea purpurea</i> (Purple Prairie Clover) 4/ | | |
| <i>Physostegia virginiana</i> (False Dragonhead) | | |
| <i>Potentilla arguta</i> (Prairie Cinquefoil) | | |
| <i>Ratibida pinnata</i> (Yellow Coneflower) | | |
| <i>Rudbeckia subtomentosa</i> (Fragrant Coneflower) | | |
| <i>Silphium laciniatum</i> (Compass Plant) | | |
| <i>Silphium terebinthinaceum</i> (Prairie Dock) | | |
| <i>Oligoneuron rigidum</i> (Rigid Goldenrod) | | |
| <i>Tradescantia ohimensis</i> (Spiderwort) | | |
| <i>Veronicastrum virginicum</i> (Culver's Root) | | |

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| Class – Type | Seeds | lb/acre (kg/hectare) |
|--|--|--|
| 5A Large Flower Native Forb Mixture 2/ 5/ 6/ | Forb Mixture (see below) | 5 (5) |
| <u>Species:</u> <i>Aster novae-angliae</i> (New England Aster) <i>Echinacea pallida</i> (Pale Purple Coneflower) <i>Helianthus mollis</i> (Downy Sunflower) <i>Heliopsis helianthoides</i> (Ox-Eye) <i>Liatris pycnostachya</i> (Prairie Blazing Star) <i>Ratibida pinnata</i> (Yellow Coneflower) <i>Rudbeckia hirta</i> (Black-Eyed Susan) <i>Silphium laciniatum</i> (Compass Plant) <i>Silphium terebinthinaceum</i> (Prairie Dock) <i>Oligoneuron rigidum</i> (Rigid Goldenrod) | | <u>% By Weight</u> 5 10 10 10 10 5 10 10 20 10 |
| 5B Wetland Forb 2/ 5/ 6/ | Forb Mixture (see below) | 2 (2) |
| <u>Species:</u> <i>Acorus calamus</i> (Sweet Flag) <i>Angelica atropurpurea</i> (Angelica) <i>Asclepias incarnata</i> (Swamp Milkweed) <i>Aster puniceus</i> (Purple Stemmed Aster) <i>Bidens cernua</i> (Beggarticks) <i>Eutrochium maculatum</i> (Spotted Joe Pye Weed) <i>Eupatorium perfoliatum</i> (Boneset) <i>Helenium autumnale</i> (Autumn Sneeze Weed) <i>Iris virginica shrevei</i> (Blue Flag Iris) <i>Lobelia cardinalis</i> (Cardinal Flower) <i>Lobelia siphilitica</i> (Great Blue Lobelia) <i>Lythrum alatum</i> (Winged Loosestrife) <i>Physostegia virginiana</i> (False Dragonhead) <i>Persicaria pensylvanica</i> (Pennsylvania Smartweed) <i>Persicaria lapathifolia</i> (Curlytop Knotweed) <i>Pychanthemum virginianum</i> (Mountain Mint) <i>Rudbeckia laciniata</i> (Cut-leaf Coneflower) <i>Oligoneuron riddellii</i> (Riddell Goldenrod) <i>Sparganium eurycarpum</i> (Giant Burreed) | | <u>% By Weight</u> 3 6 2 10 7 7 7 2 2 5 5 2 5 10 10 5 5 2 5 |
| 6 Conservation Mixture 2/ 6/ | <i>Schizachyrium scoparium</i> (Little Blue Stem) 5/ <i>Elymus canadensis</i> (Canada Wild Rye) 5/ Buffalo Grass 5/ 7/ Vernal Alfalfa 4/ Oats, Spring | 5 (5) 2 (2) 5 (5) 15 (15) 48 (55) |
| 6A Salt Tolerant Conservation Mixture 2/ 6/ | <i>Schizachyrium scoparium</i> (Little Blue Stem) 5/ <i>Elymus canadensis</i> (Canada Wild Rye) 5/ Buffalo Grass 5/ 7/ Vernal Alfalfa 4/ Oats, Spring <i>Puccinellia distans</i> (Fults Saltgrass or Salty Alkaligrass) | 5 (5) 2 (2) 5 (5) 15 (15) 48 (55) 20 (20) |
| 7 Temporary Turf Cover Mixture | Perennial Ryegrass Oats, Spring | 50 (55) 64 (70) |

Notes:

- 1/ Seeding shall be performed when the ambient temperature has been between 45 °F (7 °C) and 80 °F (27 °C) for a minimum of seven (7) consecutive days and is forecasted to be the same for the next five (5) days according to the National Weather Service.
- 2/ Seeding shall be performed in late fall through spring beginning when the ambient temperature has been below 45 °F (7 °C) for a minimum of seven (7) consecutive days and ending when the ambient temperature exceeds 80 °F (27 °C) according to the National Weather Service.
- 3/ Specific variety as shown in the plans or approved by the Engineer.
- 4/ Inoculation required.
- 5/ Pure Live Seed (PLS) shall be used.
- 6/ Fertilizer shall not be used.
- 7/ Seed shall be primed with KNO₃ to break dormancy and dyed to indicate such.

Seeding will be inspected after a period of establishment. The period of establishment shall be six (6) months minimum, but not to exceed nine (9) months. After the period of establishment, areas not exhibiting 75 percent uniform growth shall be interseeded or reseeded, as determined by the Engineer, at no additional cost to the Department.”

SHORT TERM AND TEMPORARY PAVEMENT MARKINGS (BDE)

Effective: April 1, 2024

Revised: April 2, 2024

Revise Article 701.02(d) of the Standard Specifications to read:

“(d) Pavement Marking Tapes (Note 3)1095.06”

Add the following Note to the end of Article 701.02 of the Standard Specifications:

“Note 3. White or yellow pavement marking tape that is to remain in place longer than 14 days shall be Type IV tape.”

Revise Article 703.02(c) of the Standard Specifications to read:

“(c) Pavement Marking Tapes (Note 1)1095.06”

Add the following Note to the end of Article 703.02 of the Standard Specifications:

“Note 1. White or yellow pavement marking tape that is to remain in place longer than 14 days shall be Type IV tape.”

Revise Article 1095.06 of the Standard Specifications to read:

“**1095.06 Pavement Marking Tapes.** Type I white or yellow marking tape shall consist of glass spheres embedded into a binder on a foil backing that is precoated with a pressure sensitive

adhesive. The spheres shall be of uniform gradation and distributed evenly over the surface of the tape.

Type IV tape shall consist of white or yellow tape with wet reflective media incorporated to provide immediate and continuing retroreflection in wet and dry conditions. The wet retroreflective media shall be bonded to a durable polyurethane surface. The patterned surface shall have approximately 40 ± 10 percent of the surface area raised and presenting a near vertical face to traffic from any direction. The channels between the raised areas shall be substantially free of exposed reflective elements or particles.

Blackout tape shall consist of a matte black, non-reflective, patterned surface that is precoated with a pressure sensitive adhesive.

- (a) Color. The white and yellow markings shall meet the following requirements for daylight reflectance and color, when tested, using a color spectrophotometer with 45 degrees circumferential/zero degree geometry, illuminant D65, and two degree observer angle. The color instrument shall measure the visible spectrum from 380 to 720 nm with a wavelength measurement interval and spectral bandpass of 10 nm.

| Color | Daylight Reflectance %Y |
|----------|-------------------------|
| White | 65 min. |
| Yellow * | 36 - 59 |

*Shall match Aerospace Material Specification Standard 595 33538 (Orange Yellow) and the chromaticity limits as follows.

| | | | | |
|---|-------|-------|-------|-------|
| x | 0.490 | 0.475 | 0.485 | 0.530 |
| y | 0.470 | 0.438 | 0.425 | 0.456 |

- (b) Retroreflectivity. The white and yellow markings shall be retroreflective. Reflective values measured in accordance with the photometric testing procedure of ASTM D 4061 shall not be less than those listed in the table below. The coefficient of retroreflected luminance, R_L , shall be expressed as average millicandelas/footcandle/sq ft (millicandelas/lux/sq m), measured on a 3.0 x 0.5 ft (900 mm x 150 mm) panel at 86 degree entrance angle.

| Coefficient of Retroreflected Luminance, R_L , Dry | | | | | |
|--|-------|--------|-------------------|-------|--------|
| Type I | | | Type IV | | |
| Observation Angle | White | Yellow | Observation Angle | White | Yellow |
| 0.2° | 2700 | 2400 | 0.2° | 1300 | 1200 |
| 0.5° | 2250 | 2000 | 0.5° | 1100 | 1000 |

Wet retroreflectance shall be measured for Type IV under wet conditions according to ASTM E 2177 and meet the following.

| Wet Retroreflectance, Initial R_L | |
|-------------------------------------|------------------|
| Color | R_L 1.05/88.76 |
| White | 300 |

| | |
|--------|-----|
| Yellow | 200 |
|--------|-----|

- (c) Skid Resistance. The surface of Type IV and blackout markings shall provide a minimum skid resistance of 45 BPN when tested according to ASTM E 303.
- (d) Application. The pavement marking tape shall have a precoated pressure sensitive adhesive and shall require no activation procedures. Test pieces of the tape shall be applied according to the manufacturer's instructions and tested according to ASTM D 1000, Method A, except that a stiff, short bristle roller brush and heavy hand pressure will be substituted for the weighted rubber roller in applying the test pieces to the metal test panel. Material tested as directed above shall show a minimum adhesion value of 750 g/in. (30 g/mm) width at the temperatures specified in ASTM D 1000. The adhesive shall be resistant to oils, acids, solvents, and water, and shall not leave objectionable stains or residue after removal. The material shall be flexible and conformable to the texture of the pavement.
- (e) Durability. Type IV and blackout tape shall be capable of performing for the duration of a normal construction season and shall then be capable of being removed intact or in large sections at pavement temperatures above 40 °F (4 °C) either manually or with a roll-up device without the use of sandblasting, solvents, or grinding. The Contractor shall provide a manufacturer's certification that the material meets the requirements for being removed after the following minimum traffic exposure based on transverse test decks with rolling traffic.
- (1) Time in place - 400 days
 - (2) ADT per lane - 9,000 (28 percent trucks)
 - (3) Axle hits - 10,000,000 minimum

Samples of the material applied to standard specimen plates will be measured for thickness and tested for durability in accordance with ASTM D 4060, using a CS-17 wheel and 1000-gram load, and shall meet the following criteria showing no significant change in color after being tested for the number of cycles indicated.

| Test | Type I | Type IV | Blackout |
|---|-----------|--|--|
| Minimum Initial Thickness, mils (mm) | 20 (0.51) | 65 (1.65) ^{1/} 20 (0.51) ^{2/} | 65 (1.65) ^{1/} 20 (0.51) ^{2/} |
| Durability (cycles) | 5,000 | 1,500 | 1,500 |

1/ Measured at the thickest point of the patterned surface.

2/ Measured at the thinnest point of the patterned surface.

The pavement marking tape, when applied according to the manufacturer's recommended procedures, shall be weather resistant and shall show no appreciable fading, lifting, or shrinkage during the useful life of the marking. The tape, as applied, shall be of good appearance, free of cracks, and edges shall be true, straight, and unbroken.

- (f) Sampling and Inspection.

- (1) Sample. Prior to approval and use of Type IV pavement marking tape, the manufacturer shall submit a notarized certification from an independent laboratory, together with the results of all tests, stating that the material meets the requirements as set forth herein. The independent laboratory test report shall state the lot tested, the manufacturer's name, and the date of manufacture.

After initial approval by the Department, samples and certification by the manufacturer shall be submitted for each subsequent batch of Type IV tape used. The manufacturer shall submit a certification stating that the material meets the requirements as set forth herein and is essentially identical to the material sent for qualification. The certification shall state the lot tested, the manufacturer's name, and the date of manufacture.

- (2) Inspection. The Contractor shall provide a manufacturer's certification to the Engineer stating the material meets all requirements of this specification. All material samples for acceptance tests shall be taken or witnessed by a representative of the Bureau of Materials and shall be submitted to the Engineer of Materials, 126 East Ash Street, Springfield, Illinois 62704-4766 at least 30 days in advance of the pavement marking operations."

SIGN PANELS AND APPURTENANCES (BDE)

Effective: January 1, 2025

Revised: April 1, 2025

Add Article 720.02(c) of the Standard Specifications to read:

"(c) Aluminum Epoxy Mastic1008.03"

Revise the second and third paragraphs of Article 720.02 of the Standard Specifications to read:

"The sign mounting support channel shall be manufactured from steel or aluminum and shall be according to Standard 720001.

Steel support channels shall be according to ASTM A 1011 (A 1011M), ASTM A 635 (A 635M), ASTM A 568 (A 568M), or ASTM A 684 (A 684M), and shall be galvanized. Galvanizing shall be according to ASTM A 653 (A 653M) when galvanized before fabrication, and AASHTO M 111 (M 111M) when galvanized after fabrication. Field or post fabricated drilled holes shall be spot painted with one coat of aluminum epoxy mastic paint prior to installation."

Revise the fifth paragraph of Article 720.02 of the Standard Specifications to read:

"The stainless steel banding for mounting signs or sign support channels to light or signal standards shall be according to ASTM A 240 (A 240M) Type 302 stainless steel."

SOURCE OF SUPPLY AND QUALITY REQUIREMENTS (BDE)

Effective: January 2, 2023

Add the following to Article 106.01 of the Standard Specifications:

“The final manufacturing process for construction materials and the immediately preceding manufacturing stage for construction materials shall occur within the United States. Construction materials shall include an article, material, or supply that is or consists primarily of the following.

- (a) Non-ferrous metals;
- (b) Plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables);
- (c) Glass (including optic glass);
- (d) Lumber;
- (e) Drywall.

Items consisting of two or more of the listed construction materials that have been combined through a manufacturing process, and items including at least one of the listed materials combined with a material that is not listed through a manufacturing process shall be exempt.”

STEEL COST ADJUSTMENT (BDE)

Effective: April 2, 2004

Revised: January 1, 2022

Description. Steel cost adjustments will be made to provide additional compensation to the Contractor, or a credit to the Department, for fluctuations in steel prices when optioned by the Contractor. The bidder shall indicate with their bid whether or not this special provision will be part of the contract. Failure to indicate “Yes” for any item of work will make that item of steel exempt from steel cost adjustment.

Types of Steel Products. An adjustment will be made for fluctuations in the cost of steel used in the manufacture of the following items:

- Metal Piling (excluding temporary sheet piling)
- Structural Steel
- Reinforcing Steel

Other steel materials such as dowel bars, tie bars, welded reinforcement, guardrail, steel traffic signal and light poles, towers and mast arms, metal railings (excluding wire fence), and frames and grates will be subject to a steel cost adjustment when the pay items they are used in have a contract value of \$10,000 or greater.

The adjustments shall apply to the above items when they are part of the original proposed construction, or added as extra work and paid for by agreed unit prices. The adjustments shall

not apply when the item is added as extra work and paid for at a lump sum price or by force account.

Documentation. Sufficient documentation shall be furnished to the Engineer to verify the following:

- (a) The dates and quantity of steel, in lb (kg), shipped from the mill to the fabricator.
- (b) The quantity of steel, in lb (kg), incorporated into the various items of work covered by this special provision. The Department reserves the right to verify submitted quantities.

Method of Adjustment. Steel cost adjustments will be computed as follows:

$$SCA = Q \times D$$

Where: SCA = steel cost adjustment, in dollars
Q = quantity of steel incorporated into the work, in lb (kg)
D = price factor, in dollars per lb (kg)

$$D = MPI_M - MPI_L$$

Where: MPI_M = The Materials Cost Index for steel as published by the Engineering News-Record for the month the steel is shipped from the mill. The indices will be converted from dollars per 100 lb to dollars per lb (kg).

MPI_L = The Materials Cost Index for steel as published by the Engineering News-Record for the month prior to the letting for work paid for at the contract price; or for the month the agreed unit price letter is submitted by the Contractor for extra work paid for by agreed unit price,. The indices will be converted from dollars per 100 lb to dollars per lb (kg).

The unit weights (masses) of steel that will be used to calculate the steel cost adjustment for the various items are shown in the attached table.

No steel cost adjustment will be made for any products manufactured from steel having a mill shipping date prior to the letting date.

If the Contractor fails to provide the required documentation, the method of adjustment will be calculated as described above; however, the MPI_M will be based on the date the steel arrives at the job site. In this case, an adjustment will only be made when there is a decrease in steel costs.

Basis of Payment. Steel cost adjustments may be positive or negative but will only be made when there is a difference between the MPI_L and MPI_M in excess of five percent, as calculated by:

$$\text{Percent Difference} = \{(MPI_L - MPI_M) \div MPI_L\} \times 100$$

Steel cost adjustments will be calculated by the Engineer and will be paid or deducted when all other contract requirements for the items of work are satisfied. Adjustments will only be made for fluctuations in the cost of the steel as described herein. No adjustment will be made for changes in the cost of manufacturing, fabrication, shipping, storage, etc.

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The adjustments shall not apply during contract time subject to liquidated damages for completion of the entire contract.

Attachment

| Item | Unit Mass (Weight) |
|---|--------------------------------|
| Metal Piling (excluding temporary sheet piling) | |
| Furnishing Metal Pile Shells 12 in. (305 mm), 0.179 in. (3.80 mm) wall thickness) | 23 lb/ft (34 kg/m) |
| Furnishing Metal Pile Shells 12 in. (305 mm), 0.250 in. (6.35 mm) wall thickness) | 32 lb/ft (48 kg/m) |
| Furnishing Metal Pile Shells 14 in. (356 mm), 0.250 in. (6.35 mm) wall thickness) | 37 lb/ft (55 kg/m) |
| Other piling | See plans |
| Structural Steel | See plans for weights (masses) |
| Reinforcing Steel | See plans for weights (masses) |
| Dowel Bars and Tie Bars | 6 lb (3 kg) each |
| Welded Reinforcement | 63 lb/100 sq ft (310 kg/sq m) |
| Guardrail | |
| Steel Plate Beam Guardrail, Type A w/steel posts | 20 lb/ft (30 kg/m) |
| Steel Plate Beam Guardrail, Type B w/steel posts | 30 lb/ft (45 kg/m) |
| Steel Plate Beam Guardrail, Types A and B w/wood posts | 8 lb/ft (12 kg/m) |
| Steel Plate Beam Guardrail, Type 2 | 305 lb (140 kg) each |
| Steel Plate Beam Guardrail, Type 6 | 1260 lb (570 kg) each |
| Traffic Barrier Terminal, Type 1 Special (Tangent) | 730 lb (330 kg) each |
| Traffic Barrier Terminal, Type 1 Special (Flared) | 410 lb (185 kg) each |
| Steel Traffic Signal and Light Poles, Towers and Mast Arms | |
| Traffic Signal Post | 11 lb/ft (16 kg/m) |
| Light Pole, Tenon Mount and Twin Mount, 30 - 40 ft (9 – 12 m) | 14 lb/ft (21 kg/m) |
| Light Pole, Tenon Mount and Twin Mount, 45 - 55 ft (13.5 – 16.5 m) | 21 lb/ft (31 kg/m) |
| Light Pole w/Mast Arm, 30 - 50 ft (9 – 15.2 m) | 13 lb/ft (19 kg/m) |
| Light Pole w/Mast Arm, 55 - 60 ft (16.5 – 18 m) | 19 lb/ft (28 kg/m) |
| Light Tower w/Luminaire Mount, 80 - 110 ft (24 – 33.5 m) | 31 lb/ft (46 kg/m) |
| Light Tower w/Luminaire Mount, 120 - 140 ft (36.5 – 42.5 m) | 65 lb/ft (97 kg/m) |
| Light Tower w/Luminaire Mount, 150 - 160 ft (45.5 – 48.5 m) | 80 lb/ft (119 kg/m) |
| Metal Railings (excluding wire fence) | |
| Steel Railing, Type SM | 64 lb/ft (95 kg/m) |
| Steel Railing, Type S-1 | 39 lb/ft (58 kg/m) |
| Steel Railing, Type T-1 | 53 lb/ft (79 kg/m) |
| Steel Bridge Rail | 52 lb/ft (77 kg/m) |
| Frames and Grates | |
| Frame | 250 lb (115 kg) |
| Lids and Grates | 150 lb (70 kg) |

SUBCONTRACTOR AND DBE PAYMENT REPORTING (BDE)

Effective: April 2, 2018

Add the following to Section 109 of the Standard Specifications.

“109.14 Subcontractor and Disadvantaged Business Enterprise Payment Reporting.

The Contractor shall report all payments made to the following parties:

- (a) first tier subcontractors;
- (b) lower tier subcontractors affecting disadvantaged business enterprise (DBE) goal credit;
- (c) material suppliers or trucking firms that are part of the Contractor’s submitted DBE utilization plan.

The report shall be made through the Department’s on-line subcontractor payment reporting system within 21 days of making the payment.”

SUBCONTRACTOR MOBILIZATION PAYMENTS (BDE)

Effective: November 2, 2017

Revised: April 1, 2019

Replace the second paragraph of Article 109.12 of the Standard Specifications with the following:

“This mobilization payment shall be made at least seven days prior to the subcontractor starting work. The amount paid shall be at the following percentage of the amount of the subcontract reported on form BC 260A submitted for the approval of the subcontractor’s work.

| Value of Subcontract Reported on Form BC 260A | Mobilization Percentage |
|---|-------------------------|
| Less than \$10,000 | 25% |
| \$10,000 to less than \$20,000 | 20% |
| \$20,000 to less than \$40,000 | 18% |
| \$40,000 to less than \$60,000 | 16% |
| \$60,000 to less than \$80,000 | 14% |
| \$80,000 to less than \$100,000 | 12% |
| \$100,000 to less than \$250,000 | 10% |
| \$250,000 to less than \$500,000 | 9% |
| \$500,000 to \$750,000 | 8% |
| Over \$750,000 | 7%” |

SUBMISSION OF BIDDERS LIST INFORMATION (BDE)

Effective: January 2, 2025

Revised: March 2, 2025

In accordance with 49 CFR 26.11(c) all DBE and non-DBEs who bid as prime contractors and subcontractors shall provide bidders list information, including all DBE and non-DBE firms from whom the bidder has received a quote or bid to work as a subcontractor, whether or not the bidder has relied upon that bid in placing its bid as the prime contractor.

The bidders list information shall be submitted with the bid using the link provided within the “Integrated Contractor Exchange (iCX)” application of the Department’s “EBids System”.

SUBMISSION OF PAYROLL RECORDS (BDE)

Effective: April 1, 2021

Revised: November 2, 2023

FEDERAL AID CONTRACTS. Revise the following section of Check Sheet #1 of the Recurring Special Provisions to read:

“STATEMENTS AND PAYROLLS

The payroll records shall include the worker’s name, social security number, last known address, telephone number, email address, classification(s) of work actually performed, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof), daily and weekly number of hours actually worked in total, deductions made, and actual wages paid.

The Contractor and each subcontractor shall submit certified payroll records to the Department each week from the start to the completion of their respective work, except that full social security numbers, last known addresses, telephone numbers, and email addresses shall not be included on weekly submittals. Instead, the payrolls need only include an identification number for each employee (e.g., the last four digits of the employee’s social security number). The submittals shall be made using LCPTracker Pro software. The software is web-based and can be accessed at <https://lcptracker.com/>. When there has been no activity during a work week, a payroll record shall still be submitted with the appropriate option (“No Work”, “Suspended”, or “Complete”) selected.”

STATE CONTRACTS. Revise Item 3 of Section IV of Check Sheet #5 of the Recurring Special Provisions to read:

- “3. Submission of Payroll Records. The Contractor and each subcontractor shall, no later than the 15th day of each calendar month, file a certified payroll for the immediately preceding month to the Illinois Department of Labor (IDOL) through the Illinois Prevailing Wage Portal in compliance with the State Prevailing Wage Act (820 ILCS 130). The portal can be found on the IDOL website at <https://www2.illinois.gov/idol/Laws-Rules/CONMED/Pages/Prevailing-Wage-Portal.aspx>. Payrolls shall be submitted in the format prescribed by the IDOL.

In addition to filing certified payroll(s) with the IDOL, the Contractor and each subcontractor shall certify and submit payroll records to the Department each week from the start to the completion of their respective work, except that full social security numbers shall not be included on weekly submittals. Instead, the payrolls shall include an identification number for each employee (e.g., the last four digits of the employee’s social security number). In addition, starting and ending times of work each day may be omitted from the payroll records submitted. The submittals shall be made using LCPTracker Pro software. The software is web-based and can be accessed at <https://lcptracker.com/>. When there has been no activity during a work week, a payroll record shall still be submitted with the appropriate option (“No Work”, “Suspended”, or “Complete”) selected.”

SURFACE TESTING OF PAVEMENTS – IRI (BDE)

Effective: January 1, 2021

Revised: January 1, 2023

Description. This work shall consist of testing the ride quality of the finished surface of pavement sections with new concrete pavement, PCC overlays, full-depth HMA, and HMA overlays with at least 2.25 in. (57 mm) total thickness of new HMA combined with either HMA binder or HMA

surface removal, according to Illinois Test Procedure 701, "Ride Quality Testing Using the International Roughness Index (IRI)". Work shall be according to Sections 406, 407, or 420 of the Standard Specifications, except as modified herein.

Hot-Mix Asphalt (HMA) Overlays

Add the following to Article 406.03 of the Standard Specifications:

"(n) Pavement Surface Grinding Equipment.....1101.04"

Revise Article 406.11 of the Standard Specifications to read:

"406.11 Surface Tests. Prior to HMA overlay pavement improvements, the Engineer will measure the smoothness of the existing high-speed mainline pavement. The Contractor shall measure the smoothness of the finished high-speed mainline, low-speed mainline, and miscellaneous pavements after the pavement improvement is complete but within the same construction season. Testing shall be performed in the presence of the Engineer and according to Illinois Test Procedure 701. The pavement will be identified as high-speed mainline, low-speed mainline, or miscellaneous as follows.

(a) Test Sections.

- (1) High-Speed Mainline Pavement. High-speed mainline pavement consists of pavements, ramps, and loops with a posted speed limit greater than 45 mph. These sections shall be tested with an inertial profiling system (IPS).
- (2) Low-Speed Mainline Pavement. Low-speed mainline pavement consists of pavements, ramps, and loops with a posted speed limit of 45 mph or less. These sections shall be tested using a 16 ft (5 m) straightedge or with an IPS analyzed using the rolling 16 ft (5 m) straightedge simulation in ProVAL.
- (3) Miscellaneous Pavement. Miscellaneous pavement are segments that either cannot readily be tested by an IPS or conditions beyond the control of the Contractor preclude the achievement of smoothness levels typically achievable with mainline pavement construction. This may include the following examples or as determined by the Engineer.
 - a. Pavement on horizontal curves with a centerline radius of curvature of less than or equal to 1,000 ft (300 m) and the pavement within the superelevation transition of such curves;
 - b. Pavement on vertical curves having a length less than or equal to 200 ft (60 m) in combination with an algebraic change in tangent grade greater than or equal to 3 percent as may occur on urban ramps or other constricted-space facilities;
 - c. The first and last 50 ft (15 m) of a pavement section where the Contractor is not responsible for the adjoining surface;
 - d. Intersections and the 25 ft (7.6 m) before and after an intersection or end of radius return;

- e. Variable width pavements;
 - f. Side street returns, to the end of radius return;
 - g. Crossovers;
 - h. Pavement connector for bridge approach slab;
 - i. Bridge approach slab;
 - j. Pavement that must be constructed in segments of 600 ft (180 m) or less;
 - k. Pavement within 25 ft (7.6 m) of manholes, utility structures, at-grade railroad crossings, or other appurtenances;
 - l. Turn lanes; and
 - m. Pavement within 5 ft (1.5 m) of jobsite sampling locations for HMA volumetric testing that fall within the wheel path.
- Miscellaneous pavement shall be tested using a 16 ft (5 m) straightedge.
- (4) International Roughness Index (IRI). An index computed from a longitudinal profile measurement using a quarter-car simulation at a simulation speed of 50 mph (80 km/h).
 - (5) Mean Roughness Index (MRI). The average of the IRI values for the right and left wheel tracks.
 - a. MRI_O . The MRI of the existing pavement prior to construction.
 - b. MRI_I . The MRI value that warrants an incentive payment.
 - c. MRI_F . The MRI value that warrants full payment.
 - d. MRI_D . The MRI value that warrants a financial disincentive.
 - (6) Areas of Localized Roughness (ALR). Isolated areas of roughness, which can cause significant increase in the calculated MRI for a given subplot.
 - (7) Sublot. A continuous strip of pavement 0.1 mile (160 m) long and one lane wide. A partial subplot greater than or equal to 264 ft (80 m) will be subject to the same evaluation as a whole subplot. Partial sublots less than 264 ft (80 m) shall be included with the previous subplot for evaluation purposes.
- (b) Corrective Work. Corrective work shall be completed according to the following.

- (1) High-Speed Mainline Pavement. For high-speed mainline pavement, any 25 ft (7.6 m) interval with an ALR in excess of 200 in./mile (3,200 mm/km) will be identified by the Engineer and shall be corrected by the Contractor. Any subplot having a MRI greater than MRI_D , including ALR, shall be corrected to reduce the MRI to the MRI_F , or replaced at the Contractor's option.
- (2) Low-Speed Mainline Pavement. Surface variations in low-speed mainline pavement which exceed the 5/16 in. (8 mm) tolerance will be identified by the Engineer and shall be corrected by the Contractor.
- (3) Miscellaneous Pavements. Surface variations in miscellaneous pavement which exceed the 5/16 in. (8 mm) tolerance will be identified by the Engineer and shall be corrected by the Contractor.

Corrective work shall be completed with pavement surface grinding equipment or by removing and replacing the pavement. Corrective work shall be applied to the full lane width. When completed, the corrected area shall have uniform texture and appearance, with the beginning and ending of the corrected area perpendicular to the centerline of the paved surface.

Upon completion of the corrective work, the surface of the subplot(s) shall be retested. The Contractor shall furnish the data and reports to the Engineer within 2 working days after corrections are made. If the MRI and/or ALR still do not meet the requirements, additional corrective work shall be performed.

Corrective work shall be at no additional cost to the Department.

- (c) Smoothness Assessments. Assessments will be paid to or deducted from the Contractor for each subplot of high-speed mainline pavement per the Smoothness Assessment Schedule. Assessments will be based on the MRI of each subplot prior to performing any corrective work unless the Contractor has chosen to remove and replace the pavement. For pavement that is replaced, assessments will be based on the MRI determined after replacement.

The upper MRI thresholds for high-speed mainline pavement are dependent on the MRI of the existing pavement before construction (MRI_0) and shall be determined as follows.

| Upper MRI Thresholds ^{1/} | MRI Thresholds (High-Speed, HMA Overlay) | |
|------------------------------------|--|--|
| | $MRI_0 \leq 125.0$ in./mile ($\leq 1,975$ mm/km) | $MRI_0 > 125.0$ in./mile ^{1/} ($> 1,975$ mm/km) |
| Incentive (MRI_I) | 45.0 in./mile (710 mm/km) | $0.2 \times MRI_0 + 20$ |
| Full Pay (MRI_F) | 75.0 in./mile (1,190 mm/km) | $0.2 \times MRI_0 + 50$ |
| Disincentive (MRI_D) | 100.0 in./mile (1,975 mm/km) | $0.2 \times MRI_0 + 75$ |

1/ MRI_0 , MRI_I , MRI_F , and MRI_D shall be in in./mile for calculation.

Smoothness assessments for high-speed mainline pavement shall be determined as follows.

| |
|--|
| SMOOTHNESS ASSESSMENT SCHEDULE (High-Speed, HMA Overlay) |
|--|

| Mainline Pavement MRI Range | Assessment Per Sublot ^{1/} |
|-----------------------------|--|
| $MRI \leq MRI_I$ | $+ (MRI_I - MRI) \times \$20.00$ ^{2/} |
| $MRI_I < MRI \leq MRI_F$ | $+ \$0.00$ |
| $MRI_F < MRI \leq MRI_D$ | $- (MRI - MRI_F) \times \$8.00$ |
| $MRI > MRI_D$ | $- \$200.00$ |

1/ MRI, MRI_I , MRI_F , and MRI_D shall be in in./mile for calculation.

2/ The maximum incentive amount shall not exceed \$300.00.

Smoothness assessments will not be paid or deducted until all other contract requirements for the pavement are satisfied. Pavement that is corrected or replaced for reasons other than smoothness, shall be retested as stated herein.”

Hot-Mix Asphalt (HMA) Pavement (Full-Depth)

Revise the first paragraph of Article 407.03 of the Standard Specifications to read:

“407.03 Equipment. Equipment shall be according to Article 406.03.”

Revise Article 407.09 of the Standard Specifications to read:

“407.09 Surface Tests. The finished surface of the pavement shall be tested for smoothness according to Article 406.11, except as follows:

The testing of the existing pavement prior to improvements shall not apply and the smoothness assessment for high-speed mainline pavement shall be determined according to the following table.

| SMOOTHNESS ASSESSMENT SCHEDULE (High-Speed, Full-Depth HMA) | |
|---|---|
| Mainline Pavement MRI, in./mile (mm/km) | Assessment Per Sublot ^{1/} |
| ≤ 45.0 (710) | $+ (45 - MRI) \times \$45.00$ ^{2/} |
| > 45.0 (710) to 75.0 (1,190) | $+ \$0.00$ |
| > 75.0 (1,190) to 100.0 (1,580) | $- (MRI - 75) \times \$20.00$ |
| > 100.0 (1,580) | $- \$500.00$ |

1/ MRI shall be in in./mile for calculation.

2/ The maximum incentive amount shall not exceed \$800.00.”

Portland Cement Concrete Pavement

Delete Article 420.03(i) of the Standard Specifications.

Revise Article 420.10 of the Standard Specifications to read:

“420.10 Surface Tests. The finished surface of the pavement shall be tested for smoothness according to Article 406.11, except as follows.

The testing of the existing pavement prior to improvements shall not apply. The Contractor shall measure the smoothness of the finished surface of the pavement after the pavement has attained a flexural strength of 250 psi (3,800 kPa) or a compressive strength of 1,600 psi (20,700 kPa).

Membrane curing damaged during testing shall be repaired as directed by the Engineer at no additional cost to the Department.

- (a) Corrective Work. No further texturing for skid resistance will be required for areas corrected by grinding. Protective coat shall be reapplied to areas ground according to Article 420.18 at no additional cost to the Department.

Jointed portland cement concrete pavement corrected by removal and replacement, shall be corrected in full panel sizes.

- (b) Smoothness Assessments. Smoothness assessment for high-speed mainline pavement shall be determined as follows.

| SMOOTHNESS ASSESSMENT SCHEDULE (High-Speed, PCC) | |
|---|--------------------------------------|
| Mainline Pavement MRI, in./mile (mm/km) ^{3/} | Assessment Per Sublot ^{1/} |
| ≤ 45.0 (710) | + (45 – MRI) × \$60.00 ^{2/} |
| > 45.0 (710) to 75.0 (1,190) | + \$0.00 |
| > 75.0 (1,190) to 100.0 (1,580) | – (MRI – 75) × \$37.50 |
| > 100.0 (1,580) | – \$750.00 |

1/ MRI shall be in in./mile for calculation.

2/ The maximum incentive amount shall not exceed \$1200.00.

3/ If pavement is constructed with traffic in the lane next to it, then an additional 10 in./mile will be added to the upper thresholds.”

Removal of Existing Pavement and Appurtenances

Revise the first paragraph of Article 440.04 of the Standard Specifications to read:

“440.04 HMA Surface Removal for Subsequent Resurfacing. The existing HMA surface shall be removed to the depth specified on the plans with a self-propelled milling machine. The removal depth may be varied slightly at the discretion of the Engineer to satisfy the smoothness requirements of the finished pavement. The temperature at which the work is performed, the nature and condition of the equipment, and the manner of performing the work shall be such that

the milled surface is not torn, gouged, shoved or otherwise damaged by the milling operation. Sufficient cutting passes shall be made so that all irregularities or high spots are eliminated to the satisfaction of the Engineer. When tested with a 16 ft (5 m) straightedge, the milled surface shall have no surface variations in excess of 3/16 in. (5 mm)."

General Equipment

Revise Article 1101.04 of the Standard Specifications to read:

"1101.04 Pavement Surface Grinding Equipment. The pavement surface grinding device shall have a minimum effective head width of 3 ft (0.9 m).

- (a) Diamond Saw Blade Machine. The machine shall be self-propelled with multiple diamond saw blades.
- (b) Profile Milling Machine. The profile milling machine shall be a drum device with carbide or diamond teeth with spacing of 0.315 in. (8 mm) or less and maintain proper forward speed for surface texture according to the manufacturer's specifications."

SURVEYING SERVICES (BDE)

Effective: April 1, 2025

Delete the fourth paragraph of Article 667.04 of the Standard Specifications.

Delete Section 668 of the Standard Specifications.

TRAINING SPECIAL PROVISIONS (BDE)

Effective: October 15, 1975

Revised: September 2, 2021

This Training Special Provision supersedes Section 7b of the Special Provision entitled "Specific Equal Employment Opportunity Responsibilities," and is in implementation of 23 U.S.C. 140(a).

As part of the Contractor's equal employment opportunity affirmative action program, training shall be provided as follows:

The Contractor shall provide on-the-job training aimed at developing full journeyman in the type of trade or job classification involved. The number of trainees to be trained under this contract will be 5. In the event the Contractor subcontracts a portion of the contract work, it shall determine how many, if any, of the trainees are to be trained by the subcontractor, provided however, that the Contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The Contractor shall also ensure that this Training Special Provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

The number of trainees shall be distributed among the work classifications on the basis of the Contractor's needs and the availability of journeymen in the various classifications within the reasonable area of recruitment. Prior to commencing construction, the Contractor shall submit to the Illinois Department of Transportation for approval the number of trainees to be trained in each selected classification and training program to be used. Furthermore, the Contractor shall specify the starting time for training in each of the classifications. The Contractor will be credited for each trainee it employs on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities and women toward journeyman status is a primary objective of this Training Special Provision. Accordingly, the Contractor shall make every effort to enroll minority trainees and women (e.g. by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent such persons are available within a reasonable area of recruitment. The Contractor will be responsible for demonstrating the steps it has taken in pursuance thereof, prior to a determination as to whether the Contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which he or she has successfully completed a training course leading to journeyman status or in which he or she has been employed as a journeyman. The Contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used, the Contractor's records should document the findings in each case.

The minimum length and type of training for each classification will be as established in the training program selected by the Contractor and approved by the Illinois Department of Transportation and the Federal Highway Administration. The Illinois Department of Transportation and the Federal Highway Administration shall approve a program, if it is reasonably calculated to meet the equal employment opportunity obligations of the Contractor and to qualify the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved by not necessarily sponsored by the U.S. Department of Labor Employment Training Administration shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the Illinois Department of Transportation and the Federal Highway Administration. Some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Except as otherwise noted below, the Contractor will be reimbursed 80 cents per hour of training given an employee on this contract in accordance with an approved training program. As approved by the Engineer, reimbursement will be made for training of persons in excess of the

number specified herein. This reimbursement will be made even though the Contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the Contractor from receiving other reimbursement. Reimbursement for offsite training indicated above may only be made to the Contractor where he does one or more of the following and the trainees are concurrently employed on a Federal-aid project; contributes to the cost of the training, provides the instruction to the trainee or pays the trainee's wages during the offsite training period.

No payment shall be made to the Contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyman, is caused by the Contractor and evidences a lack of good faith on the part of the Contractor in meeting the requirement of this Training Special Provision. It is normally expected that a trainee will begin his training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist in his work classification or until he has completed his training program.

It is not required that all trainees be on board for the entire length of the contract. A Contractor will have fulfilled his responsibilities under this Training Special Provision if he has provided acceptable training to the number of trainees specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

Trainees will be paid at least 60 percent of the appropriate minimum journeyman's rate specified in the contract for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees in an approved existing program are enrolled as trainees on this project. In that case, the appropriate rates approved by the Departments of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Training Special Provision.

The Contractor shall furnish the trainee a copy of the program he will follow in providing the training. The Contractor shall provide each trainee with a certification showing the type and length of training satisfactorily complete.

The Contractor shall provide for the maintenance of records and furnish periodic reports documenting its performance under this Training Special Provision.

For contracts with an awarded contract value of \$500,000 or more, the Contractor is required to comply with the Illinois Works Apprenticeship Initiative (30 ILCS 559/20-20 to 20-25) and all applicable administrative rules to the extent permitted by Section 20-20(g). For federally funded projects, the number of trainees to be trained under this contract, as stated in the Training Special Provisions, will be the established goal for the Illinois Works Apprenticeship Initiative 30 ILCS 559/20-20(g). The Contractor shall make a good faith effort to meet this goal. For federally funded projects, the Illinois Works Apprenticeship Initiative will be implemented using the FHWA approved OJT procedures. The Contractor must comply with the recordkeeping and reporting obligations of the Illinois Works Apprenticeship Initiative for the life of the project, including the certification as to whether the trainee/apprentice labor hour goals were met.

Method of Measurement. The unit of measurement is in hours.

Basis of Payment. This work will be paid for at the contract unit price of 80 cents per hour for TRAINEES. The estimated total number of hours, unit price, and total price have been included in the schedule of prices.

IDOT TRAINING PROGRAM GRADUATE ON-THE-JOB TRAINING SPECIAL PROVISION

Effective: August 1, 2012

Revised: February 2, 2017

In addition to the Contractor's equal employment opportunity (EEO) affirmative action efforts undertaken as required by this Contract, the Contractor is encouraged to participate in the incentive program described below to provide additional on-the-job training to certified graduates of the IDOT pre-apprenticeship training program, as outlined in this Special Provision.

IDOT funds, and various Illinois community colleges operate, pre-apprenticeship training programs throughout the State to provide training and skill-improvement opportunities to promote the increased employment of minority groups, disadvantaged persons and women in all aspects of the highway construction industry. The intent of this IDOT Pre-Apprenticeship Training Program Graduate (TPG) special provision (Special Provision) is to place these certified program graduates on the project site for this Contract in order to provide the graduates with meaningful on-the-job training. Pursuant to this Special Provision, the Contractor must make every reasonable effort to recruit and employ certified TPG trainees to the extent such individuals are available within a practicable distance of the project site.

Specifically, participation of the Contractor or its subcontractor in the Program entitles the participant to reimbursement for graduates' hourly wages at \$15.00 per hour per utilized TPG trainee, subject to the terms of this Special Provision. Reimbursement payment will be made even though the Contractor or subcontractor may also receive additional training program funds from other non-IDOT sources for other non-TPG trainees on the Contract, provided such other source does not specifically prohibit the Contractor or subcontractor from receiving reimbursement from another entity through another program, such as IDOT through the TPG program. With regard to any IDOT funded construction training program other than TPG, however, additional reimbursement for other IDOT programs will not be made beyond the TPG Program described in this Special Provision when the TPG Program is utilized.

No payment will be made to the Contractor if the Contractor or subcontractor fails to provide the required on-site training to TPG trainees, as solely determined by IDOT. A TPG trainee must begin training on the project as soon as the start of work that utilizes the relevant trade skill and the TPG trainee must remain on the project site through completion of the Contract, so long as training opportunities continue to exist in the relevant work classification. Should a TPG trainee's employment end in advance of the completion of the Contract, the Contractor must promptly notify the IDOT District EEO Officer for the Contract that the TPG's involvement in the Contract has ended. The Contractor must supply a written report for the reason the TPG trainee involvement terminated, the hours completed by the TPG trainee on the Contract, and the number of hours for which the incentive payment provided under this Special Provision will be, or has been claimed for the separated TPG trainee.

Finally, the Contractor must maintain all records it creates as a result of participation in the Program on the Contract, and furnish periodic written reports to the IDOT District EEO Officer that document its contractual performance under and compliance with this Special Provision. Finally, through participation in the Program and reimbursement of wages, the Contractor is not relieved of, and IDOT has not waived,

the requirements of any federal or state labor or employment law applicable to TPG workers, including compliance with the Illinois Prevailing Wage Act.

Method of Measurement: The unit of measurement is in hours.

Basis of Payment: This work will be paid for at the contract unit price of \$15.00 per hour for each utilized certified TPG Program trainee (TRAINEES TRAINING PROGRAM GRADUATE). The estimated total number of hours, unit price, and total price must be included in the schedule of prices for the Contract submitted by Contractor prior to beginning work. The initial number of TPG trainees for which the incentive is available for this contract is 5.

The Department has contracted with several educational institutions to provide screening, tutoring and pre-training to individuals interested in working as a TPG trainee in various areas of common construction trade work. Only individuals who have successfully completed a Pre-Apprenticeship Training Program at these IDOT approved institutions are eligible to be TPG trainees. To obtain a list of institutions that can connect the Contractor with eligible TPG trainees, the Contractor may contact: HCCTP TPG Program Coordinator, Office of Business and Workforce Diversity (IDOT OBWD), Room 319, Illinois Department of Transportation, 2300 S. Dirksen Parkway, Springfield, Illinois 62764. Prior to commencing construction with the utilization of a TPG trainee, the Contractor must submit documentation to the IDOT District EEO Officer for the Contract that provides the names and contact information of the TPG trainee(s) to be trained in each selected work classification, proof that the TPG trainee(s) has successfully completed a Pre-Apprenticeship Training Program, proof that the TPG is in an Apprenticeship Training Program approved by the U.S. Department of Labor Bureau of Apprenticeship Training, and the start date for training in each of the applicable work classifications.

To receive payment, the Contractor must provide training opportunities aimed at developing a full journeyworker in the type of trade or job classification involved. During the course of performance of the Contract, the Contractor may seek approval from the IDOT District EEO Officer to employ additional eligible TPG trainees. In the event the Contractor subcontracts a portion of the contracted work, it must determine how many, if any, of the TPGs will be trained by the subcontractor. Though a subcontractor may conduct training, the Contractor retains the responsibility for meeting all requirements imposed by this Special Provision. The Contractor must also include this Special Provision in any subcontract where payment for contracted work performed by a TPG trainee will be passed on to a subcontractor.

Training through the Program is intended to move TPGs toward journeyman status, which is the primary objective of this Special Provision. Accordingly, the Contractor must make every effort to enroll TPG trainees by recruitment through the Program participant educational institutions to the extent eligible TPGs are available within a reasonable geographic area of the project. The Contractor is responsible for demonstrating, through documentation, the recruitment efforts it has undertaken prior to the determination by IDOT whether the Contractor is in compliance with this Special Provision, and therefore, entitled to the Training Program Graduate reimbursement of \$15.00 per hour.

Notwithstanding the on-the-job training requirement of this TPG Special Provision, some minimal off-site training is permissible as long as the offsite training is an integral part of the work of the contract, and does not compromise or conflict with the required on-site training that is central to the purpose of the Program. No individual may be employed as a TPG trainee in any work classification in which he/she has previously successfully completed a training program leading to journeyman status in any trade, or in which he/she has worked at a journeyman level or higher.

VEHICLE AND EQUIPMENT WARNING LIGHTS (BDE)

Effective: November 1, 2021

Revised: November 1, 2022

Add the following paragraph after the first paragraph of Article 701.08 of the Standard Specifications:

“The Contractor shall equip all vehicles and equipment with high-intensity oscillating, rotating, or flashing, amber or amber-and-white, warning lights which are visible from all directions. In accordance with 625 ILCS 5/12-215, the lights may only be in operation while the vehicle or equipment is engaged in construction operations.”

WEEKLY DBE TRUCKING REPORTS (BDE)

Effective: June 2, 2012

Revised: January 2, 2025

The following applies to all Disadvantaged Business Enterprise (DBE) trucks on the project, whether they are utilized for DBE goal credit or not.

The Contractor shall notify the Engineer at least three days prior to DBE trucking activity.

The Contractor shall submit a weekly report of DBE trucks hired by the Contractor or subcontractors (i.e. not owned by the Contractor or subcontractors) to the Engineer on Department form “SBE 723” within ten business days following the reporting period. The reporting period shall be Sunday through Saturday for each week reportable trucking activities occur.

Any costs associated with providing weekly DBE trucking reports shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed.

WORK ZONE TRAFFIC CONTROL DEVICES (BDE)

Effective: March 2, 2020

Revised: January 1, 2025

Add the following to Article 701.03 of the Standard Specifications:

“(q) Temporary Sign Supports 1106.02”

Revise the third paragraph of Article 701.14 of the Standard Specifications to read:

“For temporary sign supports, the Contractor shall provide a FHWA eligibility letter for each device used on the contract. The letter shall provide information for the set-up and use of the device as well as a detailed drawing of the device. The signs shall be supported within 20 degrees

of vertical. Weights used to stabilize signs shall be attached to the sign support per the manufacturer's specifications."

Revise the first paragraph of Article 701.15 of the Standard Specifications to read:

" **701.15 Traffic Control Devices.** For devices that must meet crashworthiness standards, the Contractor shall provide a manufacturer's self-certification or a FHWA eligibility letter for each Category 1 device and a FHWA eligibility letter for each Category 2 and Category 3 device used on the contract. The self-certification or letter shall provide information for the set-up and use of the device as well as a detailed drawing of the device."

Revise the first six paragraphs of Article 1106.02 of the Standard Specifications to read:

" **1106.02 Devices.** Work zone traffic control devices and combinations of devices shall meet crashworthiness standards for their respective categories. The categories are as follows.

Category 1 includes small, lightweight, channelizing and delineating devices that have been in common use for many years and are known to be crashworthy by crash testing of similar devices or years of demonstrable safe performance. These include cones, tubular markers, plastic drums, and delineators, with no attachments (e.g. lights). Category 1 devices shall be MASH compliant.

Category 2 includes devices that are not expected to produce significant vehicular velocity change but may otherwise be hazardous. These include vertical panels with lights, barricades, temporary sign supports, and Category 1 devices with attachments (e.g. drums with lights). Category 2 devices shall be MASH compliant.

Category 3 includes devices that are expected to cause significant velocity changes or other potentially harmful reactions to impacting vehicles. These include crash cushions (impact attenuators), truck mounted attenuators, and other devices not meeting the definitions of Category 1 or 2. Category 3 devices manufactured after December 31, 2019 shall be MASH compliant. Category 3 devices manufactured on or before December 31, 2019, and compliant with NCHRP 350, may be used on contracts let before December 31, 2029. Category 3 devices shall be crash tested for Test Level 3 or the test level specified.

Category 4 includes portable or trailer-mounted devices such as sign supports, speed feedback displays, arrow boards, changeable message signs, temporary traffic signals, and area lighting supports. It is preferable for Category 4 devices manufactured after December 31, 2019 to be MASH-16 compliant; however, there are currently no crash tested devices in this category, so it remains exempt from the NCHRP 350 or MASH compliance requirement.

For each type of device, when no more than one MASH compliant is available, an NCHRP 350 compliant device may be used, even if manufactured after December 31, 2019."

Revise Articles 1106.02(g), 1106.02(k), and 1106.02(l) to read:

"(g) Truck Mounted/Trailer Mounted Attenuators. The attenuator shall be approved for use at Test Level 3. Test Level 2 may be used for normal posted speeds less than or equal to 45 mph.

- (k) Temporary Water Filled Barrier. The water filled barrier shall be a lightweight plastic shell designed to accept water ballast and be on the Department's qualified product list.

Shop drawings shall be furnished by the manufacturer and shall indicate the deflection of the barrier as determined by acceptance testing; the configuration of the barrier in that test; and the vehicle weight, velocity, and angle of impact of the deflection test. The Engineer shall be provided one copy of the shop drawings.

- (l) Movable Traffic Barrier. The movable traffic barrier shall be on the Department's qualified product list.

Shop drawings shall be furnished by the manufacturer and shall indicate the deflection of the barrier as determined by acceptance testing; the configuration of the barrier in that test; and the vehicle weight, velocity, and angle of impact of the deflection test. The Engineer shall be provided one copy of the shop drawings. The barrier shall be capable of being moved on and off the roadway on a daily basis."

STORM WATER POLLUTION PREVENTION PLAN



Storm Water Pollution Prevention Plan

| Route | Marked Route | Section Number |
|-----------------|---------------------------------|---------------------|
| F.A.P. RTE. 326 | Illinois Route 47 (Eastwood Dr) | 2024-1052-N,C,SW,FL |
| Project Number | County | Contract Number |
| C-91-120-25 | McHenry | 62X94 |

This plan has been prepared to comply with the provisions of the National Pollutant Discharge Elimination System (NPDES) Permit No. ILR10 (Permit ILR10), issued by the Illinois Environmental Protection Agency (IEPA) for storm water discharges from construction site activities.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Permittee Signature & Date

 IR 2/14/2025

SWPPP Notes

Preparing BDE 2342 (Storm Water Pollution Prevention Plan)

Guidance on preparing each section of BDE 2342 (Storm Water Pollution Prevention Plan) is found in Chapter 41 of the IDOT Bureau of Design and Environment (BDE) Manual, please consult this chapter during SWPPP preparation. Please note that the Illinois Environmental Protection Agency (IEPA) has 30 days to review the Notice of Intent (NOI) prior to project approval and any deficiencies can result in construction delays.

The Notice of Intent contains the following documents:

- BDE 2342 (Storm Water Pollution Prevention Plan)
- BDE 2342 A (Contractor Certification Statement)
- Erosion and Sediment Control Plan (See Section 63-4.09 of the BDE Manual)

Non-applicable information

If any section of the SWPPP is not applicable put "N/A" in box rather than leaving blank.

National Pollutant Discharge Elimination System (NPDES) Compliance

Description of Work: This work shall consist of those efforts necessary for compliance with the requirements of the Clean Water Act, Section 402 (NPDES), and the Illinois Environment Protection Act. This provision also provides the background information needed to comply with ILR10 and ILR40 permits for this project.

NPDES COMPLIANCE REQUIREMENTS

Part I: Site Description

1. Describe the project location; include latitude and longitude, section, town, and range.

This project is located along F.A.P. Route 326 (Illinois Route 47) beginning from south of US Route 14 to north of Illinois Route 120 in Woodstock, McHenry County, IL. Sections 5, 8, 9, 16 and 17, Township 44N, Range 7E. The gross length of the project is 11,989 feet (2.271 miles). The net length is 11,872 feet (2.248 miles).

Latitude: 42°17'42.30" N; Longitude: 88°25'59.14" W

The design, installation, and maintenance of BMPs at these locations are within an area where annual erosivity (R value) is less than or equal to 160. Erosivity is less than 5 in all two-week periods between October 12 and April 15, which would qualify for a construction rainfall erosivity waiver under the US Construction General Permit requirements. At these locations, erosivity is highest in spring to autumn, April 16 - October 11.

2. Describe the nature of the construction activity or demolition work.

The work consists of reconstructing and widening of IL Route 47 from south of US 14 to north of IL Route 120 with wide decorative planted medians and narrow paved median. A shared-use path will run along the east side of the roadway and a sidewalk is proposed along the west side of the roadway. There are no reconstruction improvements within the Union Pacific Railroad right-of-way (omission Sta. 130+00.00 to Sta. 137+17.67).

Work includes intersection improvements, three roundabout intersections, retaining wall construction, roadway reconstruction, erosion control and protection, removal and reconstruction of sanitary sewer and water mains, removal of existing storm sewers, earth excavation and embankment, removal of existing improvements, pavements, pavement marking and signage, decorative landscaping, roadway lighting, traffic signals, traffic control and protection and all incidental and collateral work necessary to complete the improvements as shown on the Plans.

The project will be constructed in two pre-stages and three mainline stages. Drainage improvements will include removal of the undersized existing storm sewers and replacing with a larger conveyance system along IL Route 47. New detention basins and oversize storm sewers are proposed to accommodate increases in stormwater runoff due to the pavement widening. Where possible, open cut detention basins incorporate permanent BMP retention volume for water quality benefits. This project does not include any in-stream work.

The project includes installation, maintenance, and removal of temporary erosion and sediment control measures including erosion control blanket, protection of trees, temporary erosion control seeding, temporary mulching, surface roughening, mulch method 2, perimeter erosion barrier, storm drain inlet protection, stabilized construction entrances, and stabilized flow lines. Permanent stabilization is included in the contract and consists of seeding, sodding and rip rap. The permanent stabilization shall be installed as soon as an area will no longer be needed for construction access or traffic.

3. Describe the intended sequence of major activities which disturb soils for major portions of the site (e.g. clearing, grubbing, excavation, grading, on-site or off-site stockpiling of soils, on-site or off-site storage of materials).

Soil disturbing activities in the Pre-stage A and Pre-Stage B consist of the excavation of the following:

4. The total area of the construction site is estimated to be 46 acres.

5. The total area of the site estimated to be disturbed by excavation, grading or other activities is 46 acres.

6. Determine an estimate of the runoff coefficient of the site after construction activities are completed.

The proposed weighted average runoff coefficient after construction is 0.72.

7. Provide the existing data describing the soil of the quality of any discharge from the site.

Potential erosive areas are along the proposed swales and ditches which are provided along the outside edge next to the proposed sidewalk on the west side of the roadway and the proposed shared-use path on the east side of the roadway. The maximum side slopes provided are 3:1. Another potential erosive area is where a 2:1

maximum open cut slope will be used during construction. The erosion control plans provides Best Management Practices (BMPs) to minimize erosion from occurring during construction.

The Special Provisions contain a project specific specification for Removal And Disposal Of Regulated Substances. Approximately 139 properties within the project limit were tested to have contaminated soil. This material is classified as a non-special waste. The primary contaminants of concern are Benzo(a)pyrene and Manganese. 65 of the properties have other levels of contamination, which may include: Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Lead, Indeno(1,2,3-cd)pyrene, Iron, Chromium, Benzene, Arsenic Benzo(a)anthracene, cis-1,2-Dichloroethene, Tetrachloroethene, Trichloroethene, Benzo(a)pyrene, Vinyl Chloride, Benzo(k)fluoranthene, Carbazole, and Naphthalene. All soil management requirements are documented in the project specific specification. Non special waste disposal and engineered barrier will be used to mitigate environmental concerns. Additionally, three distinct OSHA HAZWOPER work zones (exclusion, decontamination, and support) shall apply to 4 sites within the project area

8. Erosion and Sediment Control Plan (Graphic Plan) is included in the contract. ☒ Yes ☐ No

9. List all soils found within project boundaries; include map until name, slope information, and erosivity.

Houghton muck, 0 to 2 percent slopes, K=N/A; Pella silty clay loam, cool, 0 to 2 percent slopes, K=0.28; McHenry silt loam, 2 to 4 percent slopes, K=0.49; Casco loam, 4 to 6 percent slopes, eroded, K=0.37; Dresden silt loam, 2 to 4 percent slopes, K=0.32; Fox silt loam, 2 to 4 percent slopes, K=0.37; Fox silt loam, 4 to 6 percent slopes, eroded, K=0.37; Kane silt loam, 0 to 2 percent slopes, K=0.24; Kidder loam, 4 to 6 percent slopes, eroded, K=0.37; Dunham silty clay loam, 0 to 2 percent slopes, K=0.32; Kish loam, 0 to 2 percent slopes; Orthents, loamy, undulating, K=0.32.

10. List of all MS4 permittees in the area of this project

IDOT / City of Woodstock / McHenry County

Note: For sites discharging to an MS4, a separate map identifying the location of the construction site and the location where the MS4 discharges to surface water must be included.

Part II: Waters of the US

1. List the nearest named receiving water(s) and ultimate receiving waters.

Under existing conditions, approximately 27.02 acres of tributary area outlets into a 30" RCP to Outlet #6 at Station 153+00 which discharges east which ultimately drains to Dufield pond. Due to the abandonment of Outlet #5, approximately 282.96 acres of tributary area will also be routed to Outlet #6 in proposed conditions. From just south of East South Street to Locust Avenue, IL-47 is drained by a series of small diameter storm sewers that outlet east or west along local roads. Typically, outlets draining east eventually turn north into one of the several open channels or storm sewers that generally drain north into Silver Creek. Outlets draining west from IL-47 connect into one of three large collector storm sewers towards the west. These collector storm sewers drain large tributary areas from adjacent residential neighborhoods, flowing north and eventually turning east again to cross below IL-47. The collector sewer for Outlet #10 is 60" in diameter that crosses IL-47 as a 48" sewer north of Irving Avenue, flowing east, and combines with a second 30/36/48" storm sewer flowing east below Irving Avenue.

Outlet #11 is a 36/48" in diameter that crosses under IL-47 at IL-120, flowing northeast. The collector sewer drains east into Silver Creek. Silver Creek is not listed as a biologically significant stream.

2. Are wetlands present in the project area? ☒ Yes ☐ No

If yes, describe the areal extent of the wetland acreage at the site.

Wetland Site 2 (Sta. 94+60 RT, Total site area = 0.01 ac) / 0.01 ac permanent impact
Wetland Site 4 (Sta. 130+19 LT, Total site area = 0.08 ac) / 0.06 ac permanent impact
Wetland Site 5 (Sta. 152+81 RT, Total site area = 0.05 ac) / 0.05 ac permanent impact
Wetland Site 6 (Sta. 152+82 LT & RT, Total site area = 0.29 ac) / 0.11 ac permanent impact
Wetland Site 7 (Sta. 183+29 RT, Total site area = 0.05 ac) / 0.00 ac permanent impact

3. Natural buffers:

For any storm water discharges from construction activities within 50 feet of a Waters of the United States, except for activities for water-dependent structures authorized by a Section 404 permit, the following shall apply:

(i) A 50-foot undisturbed natural buffer between the construction activity and the Waters of the United States has been provided

☒ Yes ☐ No; and/or

(ii) Additional erosion and sediment controls within that area has been provided

☒ Yes ☐ No; and Describe: Perimeter erosion barrier around entire site; tree protection; seeding upon completion of excavations

Part III. Water Quality

1. Water Quality Standards

As determined by the Illinois Pollution Control Board, Illinois waters have defined numeric limits of pollutants under the umbrella term "Water Quality Standards." In the following table are commonly used chemicals/practices used on a construction site. These chemicals if spilled into a waterway, could potentially contribute to a violation of a Water Quality Standard. If other chemicals that could contribute a violation of a Water Quality Standard, add as needed.

☒ Fertilizer (check as appropriate)

☒ Nitrogen

☒ Phosphorus, and/or

☒ Potassium

☒ Herbicide

☒ Petroleum (gas, diesel, oil, kerosene, hydraulic oil / fluids)

☒ Waste water for concrete washout station

☒ Coal tar Pitch Emulsion

☒ Other (Specify) Antifreeze/Coolants

☒ Other (Specify) Paint/Solvents

Table 1: Common chemicals/potential pollutants used during construction

If no boxes are checked in Table 1 above, check the following box:

☐ There are no chemicals on site that will exceed a Water Quality Standards if spilled.

If any boxes are checked in Table 1 above, check the following box:

There are chemicals on site that if spilled could potentially cause an exceedance of a Water Quality Standard. The Department shall implement Pollution Prevention/Good Housekeeping Practices as described in the Department's ILR40 Discharge for Small

☒ Municipal Separate Storm Sewer Systems (MS4) reiterated below and Part VIII. Unexpected Regulated Substances/Chemical Spill Procedures:

Pollution Prevention:

The Department will design, and the contractor shall, install, implement, and maintain effective pollution prevention measures to minimize the discharge of pollutants from construction activities. At a minimum, such measures must be designed, installed, implemented and maintained to:

- (a) Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge.
- (b) Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, chemical storage tanks, deicing material storage facilities and temporary stockpiles, detergents, sanitary waste, and other materials present on the site exposed to precipitation and to storm water.
- (c) Minimize the discharge of pollutants from spills, leaks and vehicle and equipment maintenance and repair activities and implement chemical spill and leak prevention and response procedures;
- (d) Minimize the exposure of fuel, oil, hydraulic fluids, other petroleum products, and other chemicals by storing in covered areas or containment areas. Any chemical container with a storage of 55 gallons or more must be stored a minimum of 50 feet from receiving waters, constructed or natural site drainage features, and storm drain inlets. If infeasible due to site constraints, store containers as far away as the site permits and document in your SWPPP the specific reasons why the 50-foot setback is infeasible and how the containers will be stored.
- (e) The contractor is to provide regular inspection of their construction activities and Best Management Practices (BMPs). Based on inspection findings, the contractor shall determine if repair, replacement, or maintenance measures are necessary in order to ensure the structural integrity, proper function, and treatment effectiveness of structural storm water BMPs. Necessary maintenance shall be completed as soon as conditions allow to prevent or reduce the discharge of pollutants to storm water or as ordered by the Engineer. The Engineer shall conduct inspections required in Section XI Inspections, and report to the contractor deficiencies noted. These Department conducted inspections do not relieve the contractor from their responsibility to inspect their operations and perform timely maintenance; and
- (f) In addition, all IDOT projects are screened for Regulated Substances as described in Section 27-3 of the BDE Manual and implemented via Section 669: Removal and Disposal of Regulated substances in the Standard Specifications for Road and Bridge Construction.

Approved alterations to the Department's provided SWPPP, including those necessary to protect Contractor Borrow, Use and Waste areas, shall be designed, installed, implemented and maintained by the Contractor in accordance with IDOT Standard Specifications Section 280.

2. 303(d) Impaired Waterways

Does the project area have any 303(d) impaired waterways with the following impairments?

- suspended solids
- turbidity, and or
- siltation

☒ Yes ☐ No

If yes, list the name(s) of the listed water body and the impairment(s)

| 303(d) waterbody | Impairments(s) |
|------------------------------------|---|
| Silver Creek (IEPA Segment IL_RTW) | Fish consumption is impaired by mercury and aesthetic quality is impaired by phosphorus (total) |
| | |
| | |

In addition, It is paramount that the project does not increase the level of the impairment(s) described above. Discuss which BMPs will be implemented to reduce the risk of impairment increase

Phosphorous fertilizer application has been reduced on the project to decrease impacts on the receiving waters.
 In addition, proposed detention basin facilities will be provided to treat pollutants via infiltration.

3. Total Maximum Daily Load (TMDL)

Does the project include any receiving waters with a TMDL for sediment, total suspended solids, turbidity or siltation? ☐ Yes ☒ No

If yes, List TMDL waterbodies below and describe associated TMDL

| TMDL waterbody | TMDL |
|----------------|------|
| N/A | N/A |
| | |
| | |

Provide a description of the erosion and sediment control strategy that will be incorporated into the site design that is consistent with the assumptions and requirements of the TMDL

N/A

If a specific numeric waste load allocation has been established that would apply to the project's discharges, provide a description of the necessary steps to meet that allocation

N/A

Part IV. Temporary Erosion and Sediment Controls

Stabilization efforts must be initiated within 1 working day of cessation of construction activity and completed within 14 days. Areas must be stabilized if they will not be disturbed for at least 14 calendar days. Exceptions to this time frame include:

- (i) Where the initiation of stabilization measures is precluded by snow cover, stabilization measures must be initiated as soon as practicable,
- (ii) On areas where construction activities have temporarily ceased and will resume after 14 days, a temporary stabilization method can be used (temporary stabilization techniques must be described), and
- (iii) Stabilization is not required for exit points at linear utility construction site that are used only episodically and for very short durations over the life of the project, provided other exit point controls are implemented to minimize sediment track-out.

Additionally, a record must be kept with the SWPPP throughout construction of the dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated.

At a minimum, controls must be coordinated, installed and maintained to:

1. Minimize the amount of soil exposed during construction activity.
2. Minimize the disturbance of steep slopes.
3. Maintain natural buffers around surface waters, direct storm water to vegetated areas to increase sediment removal and maximize storm water infiltration, unless infeasible.
4. Minimize soil compaction and, unless infeasible, preserve topsoil.

Note: For practices below, consult relevant design criteria in Chapter 41 of the BDE Manual and maintenance criteria in Erosion and Sediment Control Field Guide for Construction.

1. Erosion Control:

The following are erosion control practices which may be used on a project (place a check by each practice that will be utilized on the project, add additional practices as needed):

- | | |
|---|--|
| <input checked="" type="checkbox"/> Mulch | <input type="checkbox"/> Preservation of existing vegetation |
| <input checked="" type="checkbox"/> Erosion Control Blanket | <input type="checkbox"/> Temporary Turf Cover Mixture (Class 7) |
| <input type="checkbox"/> Turf Reinforcement Mat | <input checked="" type="checkbox"/> Permanent seeding (Class 1-6) |
| <input checked="" type="checkbox"/> Sodding | <input checked="" type="checkbox"/> Other (Specify) Surface roughening _____ |
| <input checked="" type="checkbox"/> Geotextile fabric | <input checked="" type="checkbox"/> Other (Specify) Temporary seeding _____ |
| | <input type="checkbox"/> Other (Specify) _____ |

2. Sediment Control:

The following sediment control devices will be implemented on this project:

- | | |
|---|---|
| <input type="checkbox"/> Ditch Checks | <input checked="" type="checkbox"/> Perimeter Erosion Barrier |
| <input checked="" type="checkbox"/> Inlet and Pipe protection | <input type="checkbox"/> Rolled Excelsior |
| <input type="checkbox"/> Hay or Straw bales | <input type="checkbox"/> Silt Filter Fence |

- ☐ Above grade inlet filters (fitted)
☒ Above grade inlet filters (non-fitted)
☒ Inlet filters

- ☐ Urethane foam/geotextiles
☐ Other (Specify) _____
☐ Other (Specify) _____
☐ Other (Specify) _____

3. Structural Practices:

Provide below is a description of structural practices that will be implemented:

- | | | |
|--|---|----------------------------------|
| <input type="checkbox"/> Aggregate Ditch | <input checked="" type="checkbox"/> Stabilized Construction Exits | |
| <input type="checkbox"/> Articulated Block Revetment Mat | <input type="checkbox"/> Stabilized Trench Flow | |
| <input type="checkbox"/> Barrier (Permanent) | <input type="checkbox"/> Sediment Basin | |
| <input type="checkbox"/> Concrete Revetment Mats | <input checked="" type="checkbox"/> Retaining Walls | |
| <input checked="" type="checkbox"/> Dewatering Filtering | <input checked="" type="checkbox"/> Riprap | |
| <input type="checkbox"/> Gabions | <input checked="" type="checkbox"/> Storm Drain Inlet Protection | |
| <input type="checkbox"/> In-Stream or Wetland Work | <input type="checkbox"/> Slope Walls | |
| <input type="checkbox"/> Level Spreaders | <input type="checkbox"/> Sediment Trap | |
| <input type="checkbox"/> Paved Ditch | <input checked="" type="checkbox"/> Other (Specify) _____ | Stabilized Flow Line |
| <input type="checkbox"/> Permanent Check Dams | <input checked="" type="checkbox"/> Other (Specify) _____ | In-Stream Work Plan (404 permit) |
| <input type="checkbox"/> Precast Block Revetment Mat | <input type="checkbox"/> Other (Specify) _____ | |
| <input checked="" type="checkbox"/> Rock Outlet Protection | <input type="checkbox"/> Other (Specify) _____ | |

4. Polymer Flocculants

Design guidance for polymer flocculants is available in Chapter 41 of the BDE Manual. In addition, Polymer Flocculants may only be used by district Special Provision.

If polymer flocculants are used for this project, the following must be adhered to and described below:

- Identify the use of all polymer flocculants at the site.
- Dosage of treatment chemicals shall be identified along with any information from any Material Safety Data Sheet.
- Describe the location of all storage areas for chemicals.
- Include any information from the manufacturer's specifications.
- Treatment chemicals must be stored in areas where they will not be exposed to precipitation.
- The SWPPP must describe procedures for use of treatment chemicals and staff responsible for use/application of treatment chemicals must be trained on the established procedures.

N/A

Part V. Other Conditions

1. Dewatering

Will dewatering be required for this project? ☒ Yes ☐ No

If yes, the following applies:

- Dewatering discharges shall be routed through a sediment control (e.g., sediment trap or basin, pumped water filter bag) designed to minimize discharges with visual turbidity;
- The discharge shall not include visible floating solids or foam;
- The discharge must not cause the formation of a visible sheen on the water surface, or visible oily deposits on the bottom or shoreline of the receiving water. An oil-water separator or suitable filtration device shall be used to treat oil, grease, or other similar products if dewatering water is found to or expected to contain these materials;
- To the extent feasible, use well-vegetated (e.g., grassy or wooded), upland areas of the site to infiltrate dewatering water before discharge;
- You are prohibited from using receiving waters as part of the treatment area;
- To minimize dewatering-related erosion and related sediment discharges, use stable, erosion-resistant surfaces (e.g., well-vegetated grassy areas, clean filler stone, geotextile underlayment) to discharge from dewatering controls. Do not place dewatering controls, such as pumped water filter bags, on steep slopes (15% or greater in grade);
- Backwash water (water used to backwash/clean any filters used as part of storm water treatment) must be properly treated or hauled off-site for disposal;
- Dewatering treatment devices shall be properly maintained; and
- See Part XI (Inspections) for inspection requirement.

Part VI. Permanent (i.e., Post-Construction) Storm Water Management Controls

Provided below is a description of measures that may be installed during the construction process to control volume and therefore the amount pollutants in storm water runoff that can occur after construction operations have been completed.

Practices may include but are not limited to the following:

- Aggregate ditch checks;
- bioswales,
- detention pond(s),
- infiltration trench;
- retention pond(s),
- open vegetated swales and natural depressions,
- treatment train (sequential system which combine several practices).
- Velocity dissipation devices (See Structural Practices above)

Describe these practices below

Erosion Control Blanket and Seeding Classes 2A and 4A, Rip Rap and geotextile fabric at drainage outlets, Sodding, Detention ponds.

Part VII. Additional Practices Incorporated From Local Ordinance(s)

In some instances, an additional practice from a local ordinance may be included in the project. If so, describe below (Note: the Department is not subject to local ordinances)

N/A

Part VIII. Unexpected Regulated Substances/Chemical Spill Procedures

When Unexpected Regulated Substances or chemical spills occur, Article 107.19 of the Standard Specifications for Road and Bridge Construction shall apply. In addition, it is the contractor's responsibility to notify the Engineer in the event of a chemical spill into a ditch or waterway, the Engineer will then notify appropriate IEPA and IEMA personnel for the appropriate cleanup procedures.

Part IX. Contractor Required Submittals

Prior to conducting any professional services at the site covered by this plan, the Contractor and each subcontractor responsible for compliance with the permit shall submit to the Resident Engineer a Contractor Certification Statement, BDE 2342A.

1. The Contractor shall provide a construction schedule containing an adequate level of detail to show major activities with implementation of pollution prevention BMPs, including the following items:

- Approximate duration of the project, including each stage of the project
- Rainy season, dry season, and winter shutdown dates
- Temporary stabilization measures to be employed by contract phases
- Mobilization time-frame
- Mass clearing and grubbing/roadside clearing dates
- Deployment of Erosion Control Practices
- Deployment of Sediment Control Practices (including stabilized construction entrances and exits to be used and how they will be maintained)
- Deployment of Construction Site Management Practices (including concrete washout facilities, chemical storage, refueling locations, etc.)
- Paving, saw-cutting, and any other pavement related operations
- Major planned stockpiling operation
- Time frame for other significant long-term operations or activities that may plan non-storm water discharges as dewatering, grinding, etc.
- Permanent stabilization activities for each area of the project

2. During the pre-construction meeting, the Contractor and each subcontractor shall provide, as an attachment to their signed Contractor Certification Statement, a discussion of how they will comply with the requirements of the permit in regard to the following items and provide a graphical representation showing location and type of BMPs to be used when applicable:

- Temporary Ditch Checks - Identify what type and the source of Temporary Ditch Checks that will be installed as part of the project. The installation details will then be included with the SWPPP.
- Vehicle Entrances and Exits - Identify type and location of stabilized construction entrances and exits to be used and how they will be maintained.
- Material Delivery, Storage and Use- Discuss where and how materials including chemicals, concrete curing compounds, petroleum products, etc. will be stored for this project. Specifically, any chemical stored in a 55 gallon drum provided by the contractor.
- Stockpile Management - Identify the location of both on-site and off-site stockpiles. Discuss what BMPs will be used to prevent pollution of storm water from stockpiles.
- Waste Disposal - Discuss methods of waste disposal that will be used for this project.
- Spill Prevention and Control - Discuss steps that will be taken in the event of a material spill.
- Concrete Residuals and Washout Wastes - Discuss the location and type of concrete washout facilities to be used on this

project and how they will be signed and maintained.

- Litter Management - Discuss how litter will be maintained for this project (education of employees, number of dumpsters, frequency of dumpster pick-up, etc.).
- Vehicle and Equipment Fueling - Identify equipment fueling locations for this project and what BMPs will be used to ensure containment and spill prevention.
- Vehicle and Equipment Cleaning and Maintenance - Identify where equipment cleaning and maintenance locations for this project and what BMPs will be used to ensure containment and spill prevention.
- Dewatering Activities - Identify the controls which will be used during dewatering operations to ensure sediments will not leave the construction site.

Additional measures indicated in the plan

404 Permit - In-Stream Work Plan per USACE requirements (see Erosion Control Notes), Inlet filters - installation, inspection and cleaning

Part X. Maintenance

It will be the Contractor's responsibility to attain maintenance guidelines for any manufactured BMPs which are to be installed and maintained per manufacture's specifications. However, when requested by the Contractor, the Resident Engineer will provide general maintenance guides (e.g., IDOT Erosion and Sediment Control Field Guide) to the Contractor for the practices associated with this project. Any damage or undermining shall be repaired immediately.

Below, describe procedures to maintain in good and effective operating conditions

All erosion and sediment control measures shall be maintained in accordance with the IDOT Erosion and Sediment Control Field Guide for Construction Inspection which can be found at: <https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/transportation-system/manuals-guides-and-handbooks/highways/environment/erosion-and-sediment-control-field-guide-for-construction-inspection.pdf>

In addition, the following link may also be useful for maintenance:

Illinois Urban Manual (IUM):

https://illinoisurbanmanual.org/wp-content/uploads/2019/04/IUM_FM_2013_FINAL_FINAL_11.4.13.pdf

The Contractor will be responsible for the inspection, maintenance and repair of all sedimentation and erosion control measures. If the Engineer notices or is notified of an erosion or sedimentation deficiency, the Engineer shall notify the Contractor to correct it. All maintenance of erosion control systems will be the responsibility of the Contractor until construction is complete and accepted by IDOT after final inspection. All Offsite Borrow, Waste, and Use areas are part of the construction site and are to be inspected according to the language in this section and Part XI.

Measures to be inspected include, but are not limited to: cut and fill slopes, ditches, perimeter erosion barrier, inlet and pipe protection, above and below grade inlet filters, tree protection, wetland cofferdam, temporary rip-rap, stabilized construction entrances and debris tracking, erosion control blanket, mulching, temporary and permanent seeding, no intrusion fencing and signs at wetlands.

Sediment collected during construction by various temporary erosion control systems shall be disposed on the site on a regular basis or as directed by the Engineer.

Inspection of all erosion control measures shall be made at least once every seven days and within 24 hours of the end of each 0.5 inches or greater rainfall (including snowfall). Additionally during winter months, all measures should be checked after each significant snowmelt. If significant weather events are predicted, the Contractor shall inspect, and repair if necessary, all point discharge features.

After inspection by the Contractor or notification by the Engineer, any necessary repairs or cleanup to maintain the effectiveness of erosion control measures shall be made immediately and stabilized accordingly. Any

damage or undermining shall be immediately repaired. Loose or weak anchors or embedments shall be stabilized to match original installation requirements. Missing items shall be replaced. Accumulated sediment shall be removed and properly disposed of as required. Stone at riprap aprons and construction entrances shall be replaced due to washout or displacement. If measures experience repetitive failures, supplemental means to prevent washout or offsite discharges shall be implemented.

On a weekly basis, the Engineer will inspect the project to determine whether erosion control efforts are in place and effective and if additional control measures are necessary.

The contractor shall implement Good Housekeeping practices to avoid off site discharges. This includes stockpile and material management, waste disposal, equipment cleaning and maintenance, litter management and stabilization practices for areas where work is paused.

Construction equipment shall be stored and fueled only at designated locations. All necessary measures shall be taken to contain any fuel or pollution runoff in compliance with environmental law and EPA Water Quality Regulations. Leaking equipment or supplies shall be immediately repaired or removed from the site.

Stabilized Flow Line - The Contractor should provide to the Engineer a plan to ensure that a stabilized flow line will be provided during storm sewer construction. The use of a stabilized flow line between installed storm sewer and open disturbance will reduce the potential for the offsite discharge of sediment bearing waters, particularly when rain is forecasted so that flow will not erode. Lack of an approved plan or failure to comply will result in an ESC Deficiency Deduction.

Part XI. Inspections

Qualified personnel shall inspect disturbed areas of the construction site that have not been finally stabilized, structural control measures, and locations where vehicles enter or exit the site at least once every seven calendar days and within 24 hours of the end of a storm or by the end of the following business or workday that is 0.50 inches or greater or equivalent snowmelt (except as allowed for Frozen Conditions).

In addition, all areas where storm water typically flows within the site should be inspected periodically to check for evidence of pollutants entering the drainage system, as well as all locations where stabilization measures have been implemented to ensure they are operating correctly.

Inspections shall be documented on the form BC 2259 (Storm Water Pollution Prevention Plan Erosion Control Inspection Report).

The Erosion and Sediment Control Field Guide for Construction Inspection shall be consulted as needed.

Dewatering

For site(s) discharging dewatering water, an inspection during the discharge shall be done once per day on which the discharge occurs and record the following in a report within 24 hours of completing the inspection:

- The inspection date;
- Names and titles of personnel performing the inspection;
- Approximate times that the dewatering discharge began and ended on the day of inspection;
- Estimates of the rate (in gallons per day) of discharge on the day of inspection;
- Whether or not any of the following indications of pollutant discharge were observed at the point of discharge: a sediment plume, suspended solids, unusual color, presence of odor, decreased clarity, or presence of foam; and/or a visible sheen on the water surface or visible oily deposits on the bottom or shoreline of the receiving water.

Frozen Conditions

Inspections may be reduced to once per month when all construction activities have ceased due to frozen conditions. Weekly inspections will recommence when construction activities resume, either temporarily or continuously, or if there is 0.5" or greater rain event, or a

discharge due to snowmelt occurs.

Flooding or unsafe conditions

Areas that are inaccessible during required inspections due to flooding or other unsafe conditions must be inspected within 72 hours of becoming accessible.

Part XII. Incidence of Noncompliance (ION)

The Department shall notify the appropriate Agency Field Operations Section office by email as described on the IEPA ION form, within 24 hours of any incidence of noncompliance for any violation of the storm water pollution prevention plan observed during any inspection conducted, or for violations of any condition of this permit.

The Department shall complete and submit within 5 days an "Incidence of Noncompliance" (ION) report for any violation of the storm water pollution prevention plan observed during any inspection conducted, or for violations of any condition of this permit. Submission shall be on forms provided by the IEPA and include specific information on the cause of noncompliance, actions which were taken to prevent any further causes of noncompliance, and a statement detailing any environmental impact which may have resulted from the noncompliance. Corrective actions must be undertaken immediately to address the identified non-compliance issue(s).

Illinois Environmental Protection Agency
Division of Water Pollution Control Compliance Assurance Section
1021 North Grand Avenue East
Post Office Box 19276 Springfield, Illinois 62794-9276

Part XIII. Corrective Actions

Corrective actions must be taken when:

- A storm water control needs repair or replacement;
- A storm water control necessary to comply with the requirements of this permit was never installed, or was installed incorrectly;
- Discharges are causing an exceedance of applicable water quality standards; or
- A prohibited discharge has occurred.

Corrective Actions must be completed as soon as possible and documented within 7 days in an Inspection Report or report of noncompliance. If it is infeasible to complete the installation or repair within 7 calendar days, it must be documented in the records why it is infeasible to complete the installation or repair within the 7 day time-frame and document the schedule for installing the storm water control(s) and making it operational as soon as feasible after the 7-day time-frame.. In the event that maintenance is required for the same storm water control at the same location three or more times, the control must be repaired in a manner that prevents continued failure to the extent feasible, and it must be documented the condition and how it was repaired in the records. Alternatively, it must be documented why the specific re-occurrence of this same issue must continue to be addressed as a routine maintenance fix.

Part XIV. Retention of Records

The Department must retain copies of the SWPPP and all reports and notices required by this permit, records of all data used to complete the NOI to be covered by this permit, and the Agency Notice of Permit Coverage letter for at least three years from the date that the permit coverage expires or is terminated. the permittee must retain a copy of the SWPPP and any revisions to the SWPPP required by this permit at the construction site from the date of project initiation to the date of final stabilization. Any manuals or other documents referenced in the SWPPP must also be retained at the construction site.

Part XV. Failure to Comply

Failure to comply with any provisions of this Storm Water Pollution Prevention Plan will result in the implementation of a National Pollutant Discharge Elimination System/Erosion and Sediment Control Deficiency Deduction against the Contractor and/or penalties under the Permit ILR10 which could be passed on to the contractor (See Article 105.03 Conformity with Contract)

Part XVI. Keeping the SWPPP ("plan") Current

IDOT shall amend the plan whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to Waters of the United States and which has not otherwise been addressed in the plan or if the plan proves to be ineffective in eliminating or significantly minimizing sediment and/or pollutants identified under paragraph Part II. Water Quality or in otherwise achieving the general objectives of controlling pollutants in storm water discharges associated with construction site activity.

In addition, the plan shall be amended to identify any new contractor and/or subcontractor that will implement a measure of the plan. Amendments to the plan may be reviewed by the IEPA the same manner as the SWPPP and Erosion and Sediment Control Plan (ESCP) submitted as part of the Notice of Intent (NOI). The SWPPP and site map must be modified within 7 days for any changes to construction plans, storm water controls or other activities at the site that are no longer accurately reflected in the SWPPP.

In addition, the NOI shall be modified using the CDX system for any substantial modifications to the project such as:

- address changes
- new contractors
- area coverage
- additional discharges to Waters of the United States, or
- other substantial modifications (e.g. addition of dewatering activities).

The notice of intent shall be modified within 30 days of the modification to the project.

Part XVII: Notifications

In addition to the NOI submitted to IEPA, all MS4 permittees identified in Part I. Site Description shall receive a copy of the NOI.

Part XVIII. Notice of Termination

Where a site has completed final stabilization and all storm water discharges from construction activities that are authorized by this permit are eliminated, the permittee must submit a completed Notice of Termination (NOT) that is signed in accordance with ILR10 permit.

Method of Measurement: NPDES Compliance shall not be measured for payment separately. Measurement for payment for Temporary Erosion and Sediment Control shall be in accordance with Section 280 or as otherwise provided in the contract. Permanent BMPs necessary to comply with this provision shall be measured for payment in accordance with their respective provisions in the contract.

Basis of Payment: NPDES Compliance shall not be paid for separately. Payment for Temporary Erosion and Sediment Control shall be in accordance with Section 280 or as otherwise provided in the contract. Permanent BMPs necessary to comply with this provision shall be paid for in accordance with their respective payment provisions in the contract.



Contractor Certification Statement



Prior to conducting any professional services at the site covered by this contract, the Contractor and every subcontractor must complete and return to the Resident Engineer the following certification. A separate certification must be submitted by each firm. Attach to this certification all items required by Section II.G of the Storm Water Pollution Prevention Plan (SWPPP) which will be handled by the Contractor/subcontractor completing this form.

| | | |
|-----------------|---------------------------------|---------------------|
| Route | Marked Route | Section Number |
| F.A.P. RTE. 326 | Illinois Route 47 (Eastwood Dr) | 2024-1052-N,C,SW,FL |
| Project Number | County | Contract Number |
| C-91-120-25 | McHenry | 62X94 |

This certification statement is a part of SWPPP for the project described above, in accordance with the General NPDES Permit No. ILR10 issued by the Illinois Environmental Protection Agency.

I certify under penalty of law that I understand the terms of the Permit No. ILR 10 that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification.

Additionally, I have read and understand all of the information and requirements stated in SWPPP for the above mentioned project; I have received copies of all appropriate maintenance procedures; and, I have provided all documentation required to be in compliance with the Permit ILR10 and SWPPP and will provide timely updates to these documents as necessary.

- ☐ Contractor
☐ Sub-Contractor

| | | | |
|---|-------------|-------------|-------------|
| Signature | Date | | |
| <div></div> | <div></div> | | |
| Print Name | Title | | |
| <div></div> | <div></div> | | |
| Name of Firm | Phone | | |
| <div></div> | <div></div> | | |
| Street Address | City | State | Zip Code |
| <div></div> | <div></div> | <div></div> | <div></div> |
| Items which this Contractor/subcontractor will be responsible for as required in Section II.G. of SWPPP | | | |
| <div></div> | | | |

ACOE – NATIONWIDE PERMIT AUTHORIZATION



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, CHICAGO DISTRICT
231 SOUTH LA SALLE STREET, SUITE 1500
CHICAGO IL 60604-1437

January 30, 2024

Regulatory Branch (LRC-2023-00670)

SUBJECT: Nationwide Permit Authorization for 0.23 Acres of Permanent Wetland Impacts for the IL-47 Corridor Roadway Improvements in Woodstock, McHenry County, Illinois (Latitude 42.306596°N, Longitude -88.431404°W)

Jose Rios
Illinois Department of Transportation
201 West Center Court
Schaumburg, Illinois 60196

Dear Mr. Rios:

The U.S. Army Corps of Engineers, Chicago District, has completed its review of your pre-construction notification for the above referenced project, dated November 29, 2023, for authorization under the Nationwide Permit (NWP) Number 14 (NWP 14 Linear Transportation Projects), submitted on your behalf by AECOM. This office has verified that your proposed activity complies with the terms and conditions of the NWP.

This determination covers only your project as described above and in the approved project plans titled, "Proposed Highway Plans FAP Route 326 Illinois Route 47 From US Route 14 to Illinois Route 120...Reconstruction, Widening, and Roundabouts, Retaining Walls, Lighting and Traffic Signal", plot date September 18, 2023, prepared by AECOM. Caution must be taken to prevent construction materials and activities from impacting waters of the United States beyond the scope of this authorization. If the design, location, or purpose of the project is changed, it is recommended that you contact this office to determine the need for further authorization.

The subject activity may be performed without further authorization from this office provided that the activity complies with the NWP terms and general conditions, the regional conditions for Illinois, the special conditions listed below, and the Section 401 Water Quality Certification ("WQC") conditions added by the Illinois Environmental Protection Agency ("IEPA"). The NWP Program terms, general conditions, and regional conditions are listed in the enclosed NWP Summary. The WQC conditions are listed in the enclosed Fact Sheet.

Specifically, we wish to draw your attention to General Condition 21, which requires permittees to notify our office immediately in the event of discovery of previously unknown human remains, Native American cultural items, or archaeological artifacts; and a term of the NWP program, which states that NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.

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In addition to the general, regional, and water quality conditions of this permit verification, the following special conditions also apply to this verification:

1. This authorization is contingent upon implementing and maintaining soil erosion and sediment controls in a serviceable condition throughout the duration of the project. You shall comply with the project's soil erosion and sediment control (SESC) plans and the installation and maintenance requirements of the SESC practices on-site. You shall notify this office any changes or modifications to the approved plan set. Please be aware that field conditions during project construction may require the implementation of additional SESC measures for further protection of aquatic resources. If you fail to implement corrective measures, this office may require more frequent site inspections to ensure the installed SESC measures are acceptable. Please be aware that work authorized herein may not commence until you receive written notification from this office that your plans meet technical standards.

As part of the SESC process, you are required to retain a qualified Independent SESC Inspector (ISI) to review the project's SESC plans and provide a detailed narrative that explains the measures to be implemented at the project site. The ISI is also required to perform site inspections of the implemented SESC measures to ensure proper installation and regular maintenance of the approved methods.

- a. You shall contact this office and the ISI at least 10 calendar days prior to the preconstruction meeting so that a representative of this office may attend. The meeting agenda will include a discussion of the SESC plan and the installation and maintenance requirements of the SESC practices on the site;
- b. Prior to commencement of any in-stream work, you shall submit construction plans and a detailed narrative to this office that disclose the contractor's preferred method of cofferdam and dewatering method;
- c. The ISI will perform weekly inspections of the implemented SESC measures to ensure proper installation and regular maintenance of the approved methods. The ISI contact information form shall be submitted to this office via e-mail and/or hard copy prior to commencement of the permitted work; and
- d. The ISI shall submit to the Corps an inspection report with digital photographs of the SESC measures on a weekly basis during the active and non-active phases of construction. An inspection report shall also be submitted at the completion of the project once the SESC measures have been removed and final stabilization has been completed.

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2. You shall provide written notification to this office at least ten (10) days prior to the commencement of work indicating the start date and estimated end date of construction. If possible, this notification should be provided by email to patrick.j.verhalen@usace.army.mil.
3. You are responsible for all work authorized herein and for ensuring that all contractors are aware of the terms and conditions of this authorization.
4. A copy of this authorization must be present at the project site during all phases of construction.

Please note that IEPA has issued Section 401 Water Quality Certification for this NWP. The conditions of this WQC are automatically conditions of this NWP verification and are included in the enclosed Fact Sheet. If you have any questions regarding Section 401 certification, please contact IEPA's Division of Water Pollution Control, Permit Section #15, by telephone at (217) 785-6939.

This verification is valid until March 14, 2026, when NWP 14 is scheduled to be modified, reissued, or revoked. Furthermore, if you commence or are under contract to commence this activity before the date the NWP is modified, reissued, or revoked, you will have 12 months from the date of the modification, reissuance, or revocation to complete the activity under the present terms and conditions. Failure to comply with the general and regional conditions of this NWP, or any project-specific special conditions of this authorization, may result in the suspension or revocation of your authorization.

This office is in receipt of ledger confirming your usage of 0.36 acres of mitigation credit from IDOT's bulk purchase from Slough Creek Mitigation Bank. This requirement was calculated by multiplying 0.23 in acres by a ratio of 1.5:1, which equals 0.35.

Once you have completed the authorized activity, please sign and return the enclosed compliance certification as required by general condition 30. If you have any questions, please contact Patrick VerHalen of this office by telephone at (312) 846-5545, or email at patrick.j.verhalen@usace.army.mil.

Sincerely,

Teralyn
Pompeii

Digitally signed by
Teralyn Pompeii
Date: 2024.01.30
21:04:25 -06'00'

Teralyn Pompeii
Chief, Regulatory Branch

Enclosures

cc:
Illinois Department of Transportation (Vanessa Ruiz)
Illinois Department of Transportation (Alycia Klunenbergl)

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**PRMIT COMPLIANCE
CERTIFICATION**

Permit Number: LRC-2023-00670
Permittee: Jose Rios
Illinois Department of Transportation
Date: January 30, 2024

I hereby certify that the work authorized by the above-referenced permit has been completed in accordance with the terms and conditions of said permit and if applicable, compensatory wetland mitigation was completed in accordance with the approved mitigation plan.¹

PERMITTEE

DATE

Within 30 days after completion of the activity authorized by this permit and any mitigation required by the permit, this certification must be signed and returned to the following address:

Email to: ChicagoRequests@usace.army.mil
Subject: Compliance Certification, LRC-2023-00670

Please note that your permitted activity is subject to compliance inspections by Corps of Engineers representatives. If you fail to comply with this permit, you may be subject to permit suspension, modification, or revocation.

¹ If compensatory mitigation was required as part of your authorization, you are certifying that the mitigation area has been graded and planted in accordance with the approved plan. You are acknowledging that the maintenance and monitoring period will begin after a site inspection by a Corps of Engineers representative or after thirty days of the Corps' receipt of this certification. You agree to comply with all permit terms and conditions, including additional reporting requirements, for the duration of the maintenance and monitoring period.



U.S. Army Corps of
Engineers
Chicago District

Nationwide Permit Summary

33 CFR Part 330; Issuance of Nationwide
Permits – February 25, 2022
Illinois

14. Linear Transportation Projects

Activities required for crossings of waters of the United States associated with the construction, expansion, modification, or improvement of linear transportation projects (e.g., roads, highways, railways, trails, driveways, airport runways, and taxiways) in waters of the United States. For linear transportation projects in non-tidal waters, the discharge cannot cause the loss of greater than 1/2-acre of waters of the United States. For linear transportation projects in tidal waters, the discharge cannot cause the loss of greater than 1/3-acre of waters of the United States. Any stream channel modification, including bank stabilization, is limited to the minimum necessary to construct or protect the linear transportation project; such modifications must be in the immediate vicinity of the project.

This NWP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to construct the linear transportation project. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

This NWP cannot be used to authorize non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if:

1. The loss of waters of the United States exceeds 1/10-acre; or
2. there is a discharge in a special aquatic site, including wetlands. (See general condition 32.) (Authorities: Sections 10 and 404)

Note 1: For linear transportation projects crossing a single waterbody more than one time at separate and distant locations, or multiple waterbodies at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. Linear transportation projects must comply with 33 CFR 330.6(d).

Note 2: Some discharges of dredged or fill material for the construction of farm roads or forest roads, or temporary roads for moving mining equipment, may qualify for an exemption under section 404(f) of the Clean Water Act (see 33 CFR 323.4).

Note 3: For NWP 14 activities that require pre-construction notification, the PCN must include any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings that require Department of the Army authorization but do not require pre-construction notification (see paragraph (b)(4) of general condition 32). The district engineer will evaluate the PCN in accordance with Section D, "District Engineer's Decision." The district engineer may require mitigation to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see general condition 23).

A. Regional Conditions

- ☐ 1. For NWP 12, NWP 57, and NWP 58, pre-construction notification is required in accordance with General Condition 32 for the following activities;
 - ☐ (a) activities that involve mechanized land clearing in a forested wetland for the utility line right-of-way;
 - ☐ (b) utility lines placed within, and parallel to or along a jurisdictional stream bed.
- ☐ 2. For Nationwide Permit 14, all proposed projects that result in the loss of greater than 300 linear feet of streambed located within Waters of the U.S., requires a Pre-Construction Notice in accordance with General Condition No. 32.
- ☐ 3. Any bank stabilization activity involving a method that protrudes from the bank contours, such as jetties, stream barbs, and/or weirs, will require a pre-construction notification in accordance with General Condition 32.

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B. Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer.

Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

☐ 1. **Navigation.**

- ☐ (a) No activity may cause more than a minimal adverse effect on navigation.
- ☐ (b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.
- ☐ (c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

☐ 2. **Aquatic Life Movements.** No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

☐ 3. **Spawning Areas.** Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

☐ 4. **Migratory Bird Breeding Areas.** Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

☐ 5. **Shellfish Beds.** No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

☐ 6. **Suitable Material.** No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

☐ 7. **Water Supply Intakes.** No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

☐ 8. **Adverse Effects from Impoundments.** If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

☐ 9. **Management of Water Flows.** To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

☐ 10. **Fills Within 100-Year Floodplains.** The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

☐ 11. **Equipment.** Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

☐ 12. **Soil Erosion and Sediment Controls.** Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

☐ 13. **Removal of Temporary Fills.** Temporary structures must be removed, to the maximum extent practicable, after their use has been discontinued. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

☐ 14. **Proper Maintenance.** Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

☐ 15. **Single and Complete Project.** The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

☐ 16. **Wild and Scenic Rivers.**

☐ (a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

☐ (b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. Permittees shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

☐ (c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: <http://www.rivers.gov/>.

☐ 17. **Tribal Rights.** No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

☐ 18. **Endangered Species.**

☐ (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR 402.02 for the definition of "effects of the action" for the purposes of ESA section 7 consultation, as well as 50 CFR 402.17, which provides further explanation under ESA section 7 regarding "activities that are reasonably

certain to occur" and "consequences caused by the proposed action."

☐ (b) Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

☐ (c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat or critical habitat proposed for such designation, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation), the pre-construction notification must include the name(s) of the endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or that utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. For activities where the non-Federal applicant has identified listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have "no effect" on listed species (or species proposed for listing or designated critical habitat (or critical habitat proposed for such designation), or until ESA section 7 consultation or conference has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

☐ (d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.

- ☐ (e) Authorization of an activity by an NWP does not authorize the “take” of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with “incidental take” provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word “harm” in the definition of “take” means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.
- ☐ (f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.
- ☐ (g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at <http://www.fws.gov/> or <http://www.fws.gov/ipac> and <http://www.nmfs.noaa.gov/pr/species/esa/> respectively.
- ☐ 19. **Migratory Birds and Bald and Golden Eagles.** The permittee is responsible for ensuring that an action authorized by NWP complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to determine what measures, if any, are necessary or appropriate to reduce adverse effects to migratory birds or eagles, including whether “incidental take” permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.
- ☐ 20. **Historic Properties.**
- ☐ (a) No activity is authorized under any NWP which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.
- ☐ (b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)(1)). If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.
- ☐ (c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts commensurate with potential impacts, which may include background research, consultation, oral history interviews, sample field investigation, and/or field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: No historic properties affected, no adverse effect, or adverse effect.

- ☐ (d) Where the non-Federal applicant has identified historic properties on which the proposed NWP activity might have the potential to cause effects and has so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed. For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.
- ☐ (e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.
- ☐ 21. **Discovery of Previously Unknown Remains and Artifacts.** Permittees that discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by NWP, they must immediately notify the district engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.
- ☐ 22. **Designated Critical Resource Waters.** Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may

also designate additional critical resource waters after notice and opportunity for public comment.

- ☐ (a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57, and 58 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.
- ☐ (b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed by permittees in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after she or he determines that the impacts to the critical resource waters will be no more than minimal.
- ☐ 23. **Mitigation.** The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:
- ☐ (a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).
- ☐ (b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.
- ☐ (c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.
- ☐ (d) Compensatory mitigation at a minimum one-for-one ratio will be required for all losses of stream bed that exceed 3/100-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement.

This compensatory mitigation requirement may be satisfied through the restoration or enhancement of riparian areas next to streams in accordance with paragraph (e) of this general condition. For losses of stream bed of 3/100-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see [33 CFR 332.3\(e\)\(3\)](#)).

☐ (e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. If restoring riparian areas involves planting vegetation, only native species should be planted. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient.

Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

☐ (f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

☐ (1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see [33 CFR 332.3\(b\)\(2\)](#) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

☐ (2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see [33 CFR 330.1\(e\)\(3\)](#)). (See also [33 CFR 332.3\(f\)](#).)

☐ (3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

☐ (4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of [33 CFR 332.4\(c\)\(2\)](#) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see [33 CFR 332.3\(k\)\(3\)](#)).

☐ (5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan needs to address only the baseline conditions at the impact site and the number of credits to be provided (see [33 CFR 332.4\(c\)\(1\)\(ii\)](#)).

☐ (6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see [33 CFR 332.4\(c\)\(1\)\(ii\)](#)).

☐ (g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

☐ (h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at [33 CFR 332.3\(b\)](#).

For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

☐ (i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

☐ 24. **Safety of Impoundment Structures.** To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

☐ 25. **Water Quality.**

☐ (a) Where the certifying authority (state, authorized tribe, or EPA, as appropriate) has not previously certified compliance of an NWP with CWA section 401, a CWA section 401 water quality certification for the proposed discharge must be obtained or waived (see [33 CFR 330.4\(c\)](#)). If the permittee cannot comply with all of the conditions of a water quality certification previously issued by certifying authority for the issuance of the NWP, then the permittee must obtain a water quality certification or waiver for the proposed discharge in order for the activity to be authorized by an NWP.

☐ (b) If the NWP activity requires pre-construction notification and the certifying authority has not previously certified compliance of an NWP with CWA section 401, the proposed discharge is not authorized by an NWP until water quality certification is obtained or waived. If the certifying authority issues a water quality certification for the proposed discharge, the permittee must submit a copy of the certification to the district engineer. The discharge is not authorized by an NWP until the district engineer has notified the permittee that the water quality certification requirement has been satisfied by the issuance of a water quality certification or a waiver.

☐ (c) The district engineer or certifying authority may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

☐ 26. **Coastal Zone Management.** In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). If the permittee cannot comply with all of the conditions of a coastal zone management consistency concurrence previously issued by the state, then the permittee must obtain an individual coastal zone management consistency concurrence or presumption of concurrence in order for the activity to be authorized by NWP. The district engineer or a state may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

☐ 27. **Regional and Case-By-Case Conditions.** The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its CWA section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

☐ 28. **Use of Multiple Nationwide Permits.** The use of more than one NWP for a single and complete project is authorized, subject to the following restrictions:

☐ (a) If only one of the NWPs used to authorize the single and complete project has a specified acreage limit, the acreage loss of waters of the United States cannot exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

☐ (b) If one or more of the NWPs used to authorize the single and complete project has specified acreage limits, the acreage loss of waters of the United States authorized by those NWPs cannot exceed their respective specified acreage limits. For example, if a commercial development is constructed under NWP 39, and the single and complete project includes the filling of an upland ditch authorized by NWP 46, the maximum acreage loss of waters of the United States for the commercial development under NWP 39 cannot exceed 1/2-acre, and the total acreage loss of waters of United States due to the NWP 39 and 46 activities cannot exceed 1 acre.

☐ 29. **Transfer of Nationwide Permit Verifications.** If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

(Transferee)

(Date)

☐ 30. **Compliance Certification.** Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

- ☐ (a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;
- ☐ (b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and
- ☐ (c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

☐ 31. **Activities Affecting Structures or Works Built by the United States.** If an NWP activity also requires review by, or permission from, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32.

An activity that requires section 408 permission and/or review is not authorized by NWP until the appropriate Corps office issues the section 408 permission or completes its review to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

☐ 32. **Pre-Construction Notification.**

☐ (a) **Timing.** Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

☐ (1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

☐ (2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

☐ (b) **Contents of Pre-Construction Notification.**

The PCN must be in writing and include the following information:

- ☐ (1) Name, address and telephone numbers of the prospective permittee;
- ☐ (2) Location of the proposed activity;
- ☐ (3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;
- ☐ (4) (i) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures.
 - ☐ (ii) For linear projects where one or more single and complete crossings require pre-construction notification, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters (including those single and complete crossings authorized by NWP but do not require PCNs). This information will be used by the district engineer to evaluate the cumulative adverse environmental effects of the proposed linear project, and does not change those non-PCN NWP activities into NWP PCNs.
 - ☐ (iii) Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

☐ (5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, perennial, and intermittent, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters.

Furthermore, the 45-day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

☐ (6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

☐ (7) For non-federal permittees, if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat (or critical habitat proposed for such designation), the PCN must include the name(s) of those endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

☐ (8) For non-federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

- ☐ (9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the "study river" (see general condition 16); and
- ☐ (10) For an NWP activity that requires permission from, or review by, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from, or review by, the Corps office having jurisdiction over that USACE project.
- ☐ (c) **Form of Pre-Construction Notification.** The nationwide permit pre-construction notification form (Form ENG 6082) should be used for NWP PCNs. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.
- ☐ (d) **Agency Coordination:**
 - ☐ (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.
 - ☐ (2) Agency coordination is required for:
 - i) All NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States;
 - ii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and
 - iii) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.
 - ☐ (3) When agency coordination is required, the district engineer will immediately provide (e.g., via email, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile

transmission, or email that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure that the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

- ☐ (4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.
- ☐ (5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

C. District Engineer's Decision

- ☐ 1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal individual and cumulative adverse effects on the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the single and complete crossings of waters of the United States that require PCNs to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings of waters of the United States authorized by NWP.

If an applicant requests a waiver of an applicable limit, as provided for in NWP 13, 36, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects.

□ 2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

□ 3. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters. The district engineer will consider any proposed compensatory mitigation or other mitigation measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at [33 CFR 332.3\(k\)](#). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure that the NWP activity

results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

□ 4. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either: (a) That the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is required to comply with general conditions 18, 20, and/or 31), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

D. Further Information

1. District engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

E. Definitions

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

Discharge: The term "discharge" means any discharge of dredged or fill material into waters of the United States.

Ecological reference: A model used to plan and design an aquatic habitat and riparian area restoration, enhancement, or establishment activity under NWP 27. An ecological reference may be based on the structure, functions, and dynamics of an aquatic habitat type or a riparian area type that currently exists in the region where the proposed NWP 27 activity is located. Alternatively, an ecological reference may be based on a conceptual model for the aquatic habitat type or riparian area type to be restored, enhanced, or established as a result of the proposed NWP 27 activity. An ecological reference takes into account the range of variation of the aquatic habitat type or riparian area type in the region.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

High Tide Line: The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps Regulatory Program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. The loss of stream bed includes the acres of stream bed that are permanently adversely affected by filling or excavation because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities that do not require Department of the Army authorization, such as activities eligible for exemptions under section 404(f) of the Clean Water Act, are not considered when calculating the loss of waters of the United States.

Navigable waters: Waters subject to section 10 of the Rivers and Harbors Act of 1899. These waters are defined at 33 CFR part 329.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NHPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of flowing or standing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of "open waters" include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Perennial stream: A perennial stream has surface water flowing continuously year-round during a typical year.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: Re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a coarse substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands next to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term "single and complete project" is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term “single and complete project” is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of “independent utility”). Single and complete non-linear projects may not be “piecemealed” to avoid the limits in an NWP authorization.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream channelization: The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. channelized stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a jurisdictional wetland that is inundated by tidal waters. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line.

Tribal lands: Any lands title to which is either: (1) Held in trust by the United States for the benefit of any Indian tribe or individual; or (2) held by any Indian tribe or individual subject to restrictions by the United States against alienation.

Tribal rights: Those rights legally accruing to a tribe or tribes by virtue of inherent sovereign authority, unextinguished aboriginal title, treaty, statute, judicial decisions, executive order or agreement, and that give rise to legally enforceable remedies.

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWPs, a waterbody is a “water of the United States.” If a wetland is adjacent to a waterbody determined to be a water of the United States, that waterbody and any adjacent wetlands are considered together as a single aquatic unit (see [33 CFR 328.4\(c\)\(2\)](#)).



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397

JB PRITZKER, GOVERNOR

JOHN J. KIM, DIRECTOR

Corrected Copy

October 8, 2021

Corrected Copy Date: DEC 21 2021

U.S. Army Corps of Engineers, Rock Island
ATTN: Ms. Samantha Chavez, Regulatory Branch
Post Office Box 2004
Clock Tower Building
Rock Island, IL 61204-2004

Re: Federal Register [Docket Number: COE-2020-0002] Proposal to Reissue and Modify
Nationwide Permits, September 15, 2020
CWA §401 Certification/Denial and applicable conditions
Illinois EPA Log no. C-0210-20

Dear Ms. Chavez:

On September 15, 2020 the Corps of Engineers issued the notice of proposed rulemaking concerning their determination to reissue and modify the current Nationwide Permits (NWP) that are set to expire on March 18, 2022. By letter dated August 19, 2021 your office extended the reasonable period of time to revise the §401 water quality certification to October 13, 2021 for thirty-two (32) NWPs. The Agency has made modifications to the certification conditions issued on December 11, 2020. By this final determination document the Illinois EPA grants §401 water quality certification for NWPs 3, 4, 5, 6, 7, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23, 25, 27, 30, 31, 32, 33, 36, 37, 38, 41, 45, 53, and 54 with the special and/or general conditions specified below. This document also provides the certification conditions for NWPs 12, 29, 39, 40, 42, 43, 51, 52, 57, and 58 and notice of the Agency determination to deny eight (8) of the proposed nationwide permits which are provided below with reasons in accordance with 40 CFR 121.7(e)(2).

CWA §401 certification is hereby granted, subject to General Conditions 1 through 12 below, for the following nationwide permits:

NWP 3 – Maintenance
NWP 4 – Fish and Wildlife Harvesting, Enhancement, and Attraction Device and Activities
NWP 5 – Scientific Measurement Devices
NWP 7 – Outfall Structures and Associated Intake Structures
NWP 18 – Minor Discharges
NWP 19 – Minor Dredging
NWP 20 – Response Operations for Oil or Hazardous Substances
NWP 22 – Removal of Vessels
NWP 25 – Structural Discharges
NWP 30 – Moist Soil Management for Wildlife
NWP 31 – Maintenance of Existing Flood Control Facilities
NWP 33 – Temporary Construction, Access and Dewatering
NWP 36 – Boat Ramps
NWP 41 – Reshaping Existing Drainage Ditches
NWP 45 – Repair of Uplands Damaged by Discrete Events

2125 S. First Street, Champaign, IL 61820 (217) 278-5800
2009 Mall Street Collinsville, IL 62234 (618) 346-5120
9511 Harrison Street, Des Plaines, IL 60016 (847) 294-4000
595 S. State Street, Elgin, IL 60123 (847) 608-3131

2309 W. Main Street, Suite 116, Marion, IL 62959 (618) 993-7200
412 SW Washington Street, Suite D, Peoria, IL 61602 (309) 671-3022
4302 N. Main Street, Rockford, IL 61103 (815) 987-7760

PLEASE PRINT ON RECYCLED PAPER

IEPA Log No. C-0210-20, Section 401 Water Quality Certification with General and Special Conditions and Denial of 401 Certification Regarding Federal Register [Docket Number: COE-2020-0002] Proposal to Reissue and Modify Nationwide Permits, September 15, 2020.

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CWA §401 certification is hereby granted, subject to General Conditions 1 through 12 below and the Special Conditions which are contained in the referenced attachment for the following identified nationwide permits:

NWP 6 – Survey Activities. Refer to Special Conditions for NWP 6 in Attachment.
NWP 12 – Oil or Natural Gas Pipeline Activities. Refer to Special Conditions for NWP 12 in Attachment.
NWP 13 – Bank Stabilization. Refer to Special Conditions for NWP 13 in Attachment.
NWP 14 – Linear Transportation Projects. Refer to Special Conditions for NWP 14 in Attachment.
NWP 15 – U.S. Coast Guard Approved Bridges. Refer to Special Conditions for NWP 15 in Attachment.
NWP 16 – Return Water from Upland Contained Disposal Areas. Refer to Special Conditions for NWP 16 in Attachment.
NWP 17 – Hydropower Projects. Refer to Special Conditions for NWP 17 in Attachment.
NWP 23 – Approved Categorical Exclusions. Refer to Special Conditions for NWP 23 in Attachment.
NWP 27 – Aquatic Habitat Restoration, Establishment, and Enhancement Activities. Refer to Special Conditions for NWP 27 in Attachment.
NWP 29 – Residential Developments. Refer to Special Conditions for NWP 29 in Attachment.
NWP 32 – Completed Enforcement Actions. Refer to Special Conditions for NWP 32 in Attachment.
NWP 37 – Emergency Watershed Protection and Rehabilitation. Refer to Special Conditions for NWP 37 in Attachment.
NWP 38 – Cleanup of Hazardous and Toxic Waste. Refer to Special Conditions for NWP 38 in Attachment.
NWP 39 – Commercial and Institutional Developments. Refer to Special Conditions for NWP 39 in Attachment.
NWP 40 – Agricultural Activities. Refer to Special Conditions for NWP 40 in Attachment.
NWP 42 – Recreational Facilities. Refer to Special Conditions for NWP 42 in Attachment.
NWP 43 – Stormwater Management Facilities. Refer to Special Conditions for NWP 43 in Attachment.
NWP 51 – Land-Based Renewable Energy Generation Facilities. Refer to Special Conditions for NWP 51 in Attachment.
NWP 52 – Water-Based Renewable Energy Generation Pilot Projects. Refer to Special Conditions for NWP 52 in Attachment.
NWP 53 – Removal of Low-Head Dams. Refer to Special Conditions for NWP 53 in Attachment.
NWP 54 – Living Shorelines. Refer to Special Conditions for NWP 54 in Attachment.
NWP 57 – Electric Utility Line and Telecommunications Activities. Refer to Special Conditions for NWP 12 in Attachment.
NWP 58 – Utility Line Activities for Water and Other Substances. Refer to Special Conditions for NWP 12 in Attachment.

CWA §401 certification is hereby denied with reasons provided in accordance with 401 CFR 121.7 for the following NWPs:

NWP 21 – Surface Coal Mining Activities. The Illinois EPA has determined that a case-specific review is warranted for all surface mining activities including carbon extraction because pursuant to 35 Ill. Admin. Code Section 401.102, mining activities are identified as having, when certain refuse materials are used, the capability to cause or threaten to cause a nuisance or render waters harmful or detrimental to public health and to all legitimate uses including but not limited to livestock and wildlife uses. The likelihood that contaminants related to coal extraction, particularly acid producing minerals in mine refuse, would be found within overburden and soil stockpiles and therefore present within fill materials warrant a facility specific antidegradation assessment pursuant to 35 Ill. Admin. Code Section 302.105. Additionally, Illinois' Section 401 implementation rules at 35 Ill. Admin. Code Part 395 regarding material testing exemptions specifically exclude material with known sources of pollution. Therefore, Section 401 certification is denied for this nationwide permit (NWP21).

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NWP 34 – Cranberry Production Activities: The Illinois EPA has determined that the area of impact that is allowed by an authorization under this nationwide permit exceeds 1/2 acre. 1/2 acre is determined to be representative of the maximum threshold for minimal degradation of existing uses of aquatic resources. Consequently, any activity authorized under this nationwide permit must be subject to a case-specific antidegradation assessment pursuant to 35 Ill. Admin. Code Section 302.105. Therefore, the Illinois EPA denies 401 certification for NWP 34.

NWP 44 – Mining Activities: The Illinois EPA has determined that a case-specific review is warranted for all surface mining activities because pursuant to 35 Ill. Admin. Code Section 401.102, mining activities are identified as having, when certain refuse materials are used, the capability to cause or threaten to cause a nuisance or render waters harmful or detrimental to public health and to all legitimate uses including but not limited to livestock and wildlife uses. Furthermore, all mining activities are regulated by the Illinois EPA under federal and state statute because of their potential to cause or threaten to cause water pollution. Therefore, for the above reasons, the Illinois EPA denies 401 certification for NWP 44.

NWP 46 – Discharges into Ditches: The Illinois EPA has determined that a case-specific review is warranted for all discharge activities into ditches because of the nationwide permit exceeds the 1/2 acreage determined to be the maximum threshold for minimal degradation of existing uses of aquatic resources. Consequently, any activity authorized under this nationwide permit must be subject to a case-specific antidegradation assessment pursuant to 35 Ill. Admin. Code Section 302.105. Therefore, the Illinois EPA denies 401 certification for NWP 46.

NWP 48 – Commercial Shellfish Mariculture Activities: As proposed, the Illinois EPA believes this nationwide permit is inapplicable to waters of the U.S. that are found within the State of Illinois. Therefore, the Illinois EPA denies 401 certification for NWP 48.

NWP 49 – Coal Remining Activities: By reference to the certification denial explanation for NWP 21, the Illinois EPA denies 401 certification for NWP 49.

NWP 50 – Underground Coal Mining: By reference to the certification denial explanation for NWP 21, the Illinois EPA denies 401 certification for NWP 50.

NWP 59 – Water Reclamation and Reuse Facilities: As proposed in the Federal Register, this proposed nationwide permit would appear to allow utilization of existing natural waterbodies as treatment devices. According to 35 Ill. Admin. Code 301.440 such utilization is not permissible. Therefore, the Illinois EPA denies 401 certification for NWP 59.

401 Certification General Conditions

General Conditions 1 through 12 shall be applicable to all NWPs that are granted 401 certification.

General Condition 1: Waterbodies that Require Individual Certification

Pursuant to 35 Ill. Adm. Code Section 302.105(d)(6), an individual 401 water quality certification will be required for activities permitted under these Nationwide Permits for discharges to waters designated by the State of Illinois as waters of particular biological significance or Outstanding Resource Waters under 35 Ill. Adm. Code 302.105(b). Biologically Significant Streams (BSS) are cataloged in Illinois DNR's publication

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“Integrating Multiple Taxa in a Biological Stream Rating System” and may be identified at:
<https://www2.illinois.gov/dnr/conservation/BiologicalStreamratings/Pages/default.aspx>.

General Condition 2: Water Quality Impairments

Pursuant to 35 Ill. Adm. Code Sections 302.105(a), 302.105(c)(2)(B), and 395.401(a), an individual 401 water quality certification will be required for activities permitted under these Nationwide Permits that may cause a discharge that, whether temporarily or permanently, may cause or contribute to additional loading of any pollutant, or deterioration of any water quality parameter, such as pH or dissolved oxygen, where such pollutant or parameter is also designated by the State of Illinois as a cause of water quality impairment of the particular segment of the receiving water body according to the Illinois Environmental Protection Agency's Section 303(d) list. The most recent Illinois Integrated Water Quality Report and Section 303(d) List can be found at <https://www2.illinois.gov/epa/topics/water-quality/watershed-management/tmdls/Pages/303d-list.aspx>.

General Condition 3: Threatened and Endangered Species

Pursuant to 35 Ill. Admin. Code Section 302.105(f)(1)(F), prior to proceeding with any work in furtherance of activities permitted under these Nationwide Permits, potential impacts to State threatened or endangered species and Natural Areas shall be determined in accordance with applicable consultation procedures established under 17 Ill. Admin Code Part 1075. The Department of Natural Resources (IDNR) Ecological Compliance Assessment Tool (EcoCAT) is available to complete consultation at <http://dnr.illinois.gov/EcoPublic/>. If IDNR determines that adverse impacts to protected natural resources are likely, the applicant shall address those identified concerns with IDNR through the consultation process. Please contact IDNR, Impact Assessment Section at 217-785-5500 if you have any questions regarding consultation.

General Condition 4: TMDLs

Pursuant to 35 Ill. Admin. Code Sections 302.105(a), 302.105(c)(2)(B), and 395.401(a), activities permitted under these Nationwide Permits that may cause a discharge that, whether temporarily or permanently, may cause or contribute to additional loading of any pollutant, or deterioration of any water quality parameter, such as pH or dissolved oxygen, where such pollutant or parameter is addressed by a USEPA approved Total Maximum Daily Load (TMDL) report for the receiving water body shall develop and implement additional measures and or procedures which ensure consistency with the load allocations, assumptions and requirements of the TMDL report. TMDL program information and water listings are available at <https://www2.illinois.gov/epa/topics/water-quality/watershed-management/tmdls/Pages/reports.aspx>.

General Condition 5: Prohibitions

Pursuant to 35 Ill. Admin. Code Section 395.401(a), the applicant shall not cause:

- a. violation of applicable provisions of the Illinois Environmental Protection Act;
- b. water pollution defined and prohibited by the Illinois Environmental Protection Act;
- c. violation of applicable water quality standards of the Illinois Pollution Control Board, Title 35, Subtitle C: Water Pollution Rules and Regulation; or
- d. interference with water use practices near public recreation areas or water supply intakes.

General Condition 6: Erosion and Sedimentation Control Measures

Pursuant to the Illinois Environmental Protection Act Section 39(a)[415 ILCS 5/39(a)] and 35 Ill. Admin. Code Sections 302.203 and 395.402(b)(2), the applicant shall implement all necessary sedimentation and erosion control measures consistent with the current edition of

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the "Illinois Urban Manual" found at <https://illinoisurbanmanual.org/>. Interim measures to prevent erosion during construction shall be taken and may include the installation of sedimentation basins, silt fencing and temporary mulching. All construction within the waterway shall be conducted during zero or low flow conditions. All areas affected by construction shall be seeded and stabilized as soon after construction as possible.

General Condition 7: NPDES Stormwater Construction Permit

Pursuant to the Illinois Environmental Protection Act Section 39(a)[415 ILCS 5/39(a)] and 35 Ill. Admin. Code Section 395.402(b)(2), the applicant shall be responsible for obtaining an NPDES Storm Water Permit required by the federal Clean Water Act prior to initiating construction if the construction activity associated with the project will result in the disturbance of 1 (one) or more acres, total land area. An NPDES Storm Water Permit may be applied for at <https://www2.illinois.gov/epa/topics/forms/water-permits/storm-water/Pages/construction.aspx>.

General Condition 8: Spill Response Plan

Pursuant to 35 Ill. Admin. Code Sections 395.401, 302.203, and 302.208, the applicant shall ensure that a spill avoidance and response plan has been developed and implemented for management of accidental releases of petroleum, oil, and lubricant products to the aquatic environment during construction and for emergency notification of applicable downstream water supply operators. Absorbent pads, containment booms and skimmers shall be available to facilitate the cleanup of petroleum spills. If floating hydrocarbon (oil and gas) products are observed, the applicant or his designated individual will be responsible for directing that work be halted so that appropriate corrective measures are taken in accordance with the plan prior to resuming work.

General Condition 9: Hydraulic Machinery

Pursuant to 35 Ill. Admin. Code Sections 302.203, 302.304, and 302.515, all hydraulic machinery utilized for the permitted activity and used in or immediately adjacent to waters of the State shall utilize biodegradable or bio-based hydraulic fluids to minimize pollution in the case of broken or leaking hydraulic equipment.

General Condition 10: Temporary Structures and Work

Pursuant to 35 Ill. Admin. Code Sections 302.203, 395.204, and 395.401(b), temporary work pads, cofferdams, access roads and other temporary fills are approved provided that such activities are constructed with clean coarse aggregate or non-erodible non-earthen fill material that will not cause siltation. Sandbags, pre-fabricated rigid materials, sheet piling, inflatable bladders and fabric lined basins may be used for temporary facilities. Temporary fills within streams, creeks or rivers shall utilize adequate bypass measures (i.e. dam and pump, flumes, culverts, etc.) to minimize sedimentation and erosion and to maintain normal stream flow during construction.

General Condition 11: Construction Site Dewatering

Pursuant to Illinois Environmental Protection Act Section 39(a)[415 ILCS 5/39(a)] and 35 Ill. Admin. Code Section 395.402(b)(2), dewatering of a construction site is authorized provided the dewatering activity is limited to the immediate work area within a cofferdam or otherwise isolated from waters of the State, and the work site is free from sources of contamination including those of natural origin. Dewatering activities shall incorporate Best Management Practices in accordance with the current edition of the "Illinois Urban Manual"

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<https://illinoisurbanmanual.org/>. Practice Standard for Dewatering (no. 813) or as otherwise appropriate to ensure that return flows from the dewatering activity are free of unnatural turbidity and floating debris and meet applicable water quality standards. Dewatering or discharge of flush water from construction of drilled piers or boreholes is not authorized and must be conducted in accordance with an NPDES permit issued by the Illinois EPA.

General Condition 12: Discharged Material Quality

Pursuant to 35 Ill. Admin. Code Sections 302.203, 302.208, and 395.401(b), any spoil material excavated, dredged or otherwise produced must not be returned to the water body but must be deposited in a self-contained area in compliance with all state statutes. Except as specifically allowed by special condition, any backfilling must be done with clean material that is predominantly sand or larger size material, with no more than 20% passing a #230 U. S. sieve and placed in a manner to prevent violation of applicable water quality standards.

401 Certification Special Conditions

Special Conditions including the conditional exclusions of 401 certification coverage that are listed within the Attachment: "Special Conditions for Illinois EPA 401 Water Quality Certifications of Certain Nationwide Permits" shall be applicable as stated therein.

Should you have any questions or comments regarding the content of this nationwide certification, please contact Darren Gove at 217-782-3362.

Sincerely,

ORIGINAL SIGNED

Darin E. LeCrone, P.E.
Manager, Permit Section
Division of Water Pollution Control

DEL:DRG:C-0210-20.docx

Attachment: Special Conditions for Illinois EPA 401 Water Quality Certifications of Certain Nationwide Permits Regarding Federal Register [Docket Number: COE-2020-0002] Proposal to Reissue and Modify Nationwide Permits dated September 15, 2020

cc: Records Unit
CoE, Chicago District
CoE, Louisville District (Indianapolis Office)
CoE, Louisville District (Newburgh Regulatory Office)
CoE, Memphis District
CoE, St. Louis District
IDNR, Bartlett
IDNR, OWR, Chicago
IDNR, OWR, Springfield
USEPA, Region 5
USFWS, Rock Island, Barrington and Marion

IEPA Log No. C-0210-20: Attachment: Special Conditions for Illinois EPA 401 Water Quality Certifications of Certain Nationwide Permits Regarding Federal Register [Docket Number: COE-2020-0002] Proposal to Reissue and Modify Nationwide Permits dated September 15, 2020

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**ILLINOIS EPA WATER QUALITY CERTIFICATION
SPECIAL CONDITIONS FOR NATIONWIDE PERMIT 14
Linear Transportation Projects**

1. Pursuant to 35 Ill. Admin. Code Sections 395.401(a), 302.105(a), and 302.105(c)(2)(B), a case-specific (individual) 401 water quality certification from the Illinois EPA will be required for linear transportation activities that cause loss of greater than 500 linear feet of stream channel, as measured along the stream corridor.
2. Pursuant to 35 Ill. Admin. Code Sections 395.401(a), 302.105(a), and 302.105(c)(2)(B), a case-specific (individual) 401 water quality certification from the Illinois EPA will be required for linear transportation activities covered by this nationwide permit that include the temporary or permanent placement of steel or other painted structures within the waterbody as result of demolition work of previous structures.
3. Pursuant to 35 Ill. Admin. Code Sections 395.401(a), 302.105(a), and 302.105(c)(2)(B), a case-specific (individual) 401 water quality certification from the Illinois EPA will be required for new or expanded roadways that affect waterways which are designated by the State of Illinois as having water quality impairments caused by chloride. The most recent Illinois Integrated Water Quality Report and Section 303(d) List can be found at <https://www2.illinois.gov/epa/topics/water-quality/watershed-management/tmdls/Pages/303d-list.aspx>
4. Pursuant to 35 Ill. Admin. Code Sections 302.203 and 395.401(b), any relocated stream channel authorized under this nationwide permit shall be constructed under dry conditions and allowed to fully stabilize prior to the diversion of flow to prevent erosion and sedimentation.

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

- I. General
- II. Nondiscrimination
- III. Non-segregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
- XI. Certification Regarding Use of Contract Funds for Lobbying
- XII. Use of United States-Flag Vessels:

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under title 23, United States Code, as required in 23 CFR 633.102(b) (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). 23 CFR 633.102(e).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider. 23 CFR 633.102(e).

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services) in accordance with 23 CFR 633.102. The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in solicitation-for-bids or request-for-proposals documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract). 23 CFR 633.102(b).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work

performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract. 23 CFR 633.102(d).

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR Part 230, Subpart A, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal Employment Opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (see 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140, shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR Part 35 and 29 CFR Part 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract. 23 CFR 230.409 (g)(4) & (5).

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, sexual orientation, gender identity, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action or are substantially involved in such action, will be made fully cognizant of and will implement the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action

within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs (i.e., apprenticeship and on-the-job training programs for the geographical area of contract performance). In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. 23 CFR 230.409. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide

sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants /

Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established thereunder. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:

The contractor shall not discriminate on the grounds of race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors, suppliers, and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurances Required:

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

- (1) Withholding monthly progress payments;
- (2) Assessing sanctions;
- (3) Liquidated damages; and/or
- (4) Disqualifying the contractor from future bidding as non-responsible.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women.

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of more than \$10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, the contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location under the contractor's control where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway

Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA- 1273 format and FHWA program requirements.

1. Minimum wages (29 CFR 5.5)

a. *Wage rates and fringe benefits.* All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act ([29 CFR part 3](#))), the full amount of basic hourly wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. As provided in paragraphs (d) and (e) of 29 CFR 5.5, the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act ([40 U.S.C. 3141\(2\)\(B\)](#)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.e. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in paragraph 4. of this section. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided*, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph 1.c. of this section) and the Davis-Bacon poster (WH-1321) must be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. *Frequently recurring classifications.* (1) In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in [29 CFR part 1](#), a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to paragraph 1.c. of this section, provided that:

(i) The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;

(ii) The classification is used in the area by the construction industry; and

(iii) The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.

(2) The Administrator will establish wage rates for such classifications in accordance with paragraph 1.c.(1)(iii) of this section. Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.

c. *Conformance.* (1) The contracting officer must require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is used in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.

(3) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken will be sent by the contracting officer by email to DBAconformance@dol.gov. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer will, by email to DBAconformance@dol.gov, refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(5) The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division

under paragraphs 1.c.(3) and (4) of this section. The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 1.c.(3) or (4) of this section must be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

d. *Fringe benefits not expressed as an hourly rate.*

Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor may either pay the benefit as stated in the wage determination or may pay another bona fide fringe benefit or an hourly cash equivalent thereof.

e. *Unfunded plans.* If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided*, That the Secretary of Labor has found, upon the written request of the contractor, in accordance with the criteria set forth in § 5.28, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

f. *Interest.* In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.

2. Withholding (29 CFR 5.5)

a. *Withholding requirements.* The contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in this section for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld. In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in paragraph 3.d. of this section, the contracting agency may on its own initiative and after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with paragraph

2.a. of this section or Section V, paragraph 3.a., or both, over claims to those funds by:

- (1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- (2) A contracting agency for its procurement costs;
- (3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- (4) A contractor's assignee(s);
- (5) A contractor's successor(s); or
- (6) A claim asserted under the Prompt Payment Act, [31 U.S.C. 3901–3907](#).

3. Records and certified payrolls (29 CFR 5.5)

a. Basic record requirements (1) Length of record retention. All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.

(2) Information required. Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.

(3) Additional records relating to fringe benefits. Whenever the Secretary of Labor has found under paragraph 1.e. of this section that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act, the contractor must maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

(4) Additional records relating to apprenticeship. Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

b. Certified payroll requirements (1) Frequency and method of submission. The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts-covered work is performed, certified payrolls to the contracting

agency. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system.

(2) Information required. The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under paragraph 3.a.(2) of this section, except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker (e.g., the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH-347 or in any other format desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division website at <https://www.dol.gov/sites/dolgov/files/WHDLegacy/files/wh347.pdf> or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the contracting agency.

(3) Statement of Compliance. Each certified payroll submitted must be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:

(i) That the certified payroll for the payroll period contains the information required to be provided under paragraph 3.b. of this section, the appropriate information and basic records are being maintained under paragraph 3.a. of this section, and such information and records are correct and complete;

(ii) That each laborer or mechanic (including each helper and apprentice) working on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in [29 CFR part 3](#); and

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification(s) of work actually performed, as specified in the applicable wage determination incorporated into the contract.

(4) Use of Optional Form WH-347. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 will satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(3) of this section.

(5) *Signature*. The signature by the contractor, subcontractor, or the contractor's or subcontractor's agent must be an original handwritten signature or a legally valid electronic signature.

(6) *Falsification*. The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under [18 U.S.C. 1001](#) and [31 U.S.C. 3729](#).

(7) *Length of certified payroll retention*. The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

c. *Contracts, subcontracts, and related documents*. The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

d. *Required disclosures and access* (1) *Required record disclosures and access to workers*. The contractor or subcontractor must make the records required under paragraphs 3.a. through 3.c. of this section, and any other documents that the contracting agency, the State DOT, the FHWA, or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by § 5.1, available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.

(2) *Sanctions for non-compliance with records and worker access requirements*. If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to § 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under [29 CFR part 6](#) any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.

(3) *Required information disclosures*. Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address

of each covered worker, and must provide them upon request to the contracting agency, the State DOT, the FHWA, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

4. Apprentices and equal employment opportunity (29 CFR 5.5)

a. *Apprentices* (1) *Rate of pay*. Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) *Fringe benefits*. Apprentices must be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringe benefits must be paid in accordance with that determination.

(3) *Apprenticeship ratio*. The allowable ratio of apprentices to journeymen on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to paragraph 4.a.(4) of this section. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in paragraph 4.a.(1) of this section, must be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(4) *Reciprocity of ratios and wage rates*. Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyworker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed.

b. *Equal employment opportunity*. The use of apprentices and journeymen under this part must be in conformity with

the equal employment opportunity requirements of Executive Order 11246, as amended, and [29 CFR part 30](#).

c. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. 23 CFR 230.111(e)(2). The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeyworkers shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract as provided in 29 CFR 5.5.

6. Subcontracts. The contractor or subcontractor must insert FHWA-1273 in any subcontracts, along with the applicable wage determination(s) and such other clauses or contract modifications as the contracting agency may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate. 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract as provided in 29 CFR 5.5.

9. Disputes concerning labor standards. As provided in 29 CFR 5.5, disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility. a. By entering into this contract, the contractor certifies that neither it nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

c. The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, [18 U.S.C. 1001](#).

11. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#); or

d. Informing any other person about their rights under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#).

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), the following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchpersons and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek. 29 CFR 5.5.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph 1. of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages and interest from the date of the underpayment. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or

mechanic, including watchpersons and guards, employed in violation of the clause set forth in paragraph 1. of this section, in the sum currently provided in 29 CFR 5.5(b)(2)* for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph 1. of this section.

* \$31 as of January 15, 2023 (See 88 FR 88 FR 2210) as may be adjusted annually by the Department of Labor, pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990.

3. Withholding for unpaid wages and liquidated damages

a. *Withholding process.* The FHWA or the contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in this section on this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with Section IV paragraph 2.a. or paragraph 3.a. of this section, or both, over claims to those funds by:

- (1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- (2) A contracting agency for its repurchase costs;
- (3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- (4) A contractor's assignee(s);
- (5) A contractor's successor(s); or
- (6) A claim asserted under the Prompt Payment Act, [31 U.S.C. 3901](#)–3907.

4. Subcontracts. The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs 1. through 5. of this section and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1. through 5. In the

event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

5. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in this part;

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or this part;

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or this part; or

d. Informing any other person about their rights under CWHSSA or this part.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" in paragraph 1 of Section VI refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions: (based on longstanding interpretation)

- (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
- (2) the prime contractor remains responsible for the quality of the work of the leased employees;

- (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
- (4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), the contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. Pursuant to 23 CFR 635.116(c), the contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract. (based on long-standing interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR Part 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract. 23 CFR 635.108.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and

health standards (29 CFR Part 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704). 29 CFR 1926.10.

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR Part 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 11, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)

This provision is applicable to all Federal-aid construction contracts in excess of \$150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.327.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.327.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200. 2 CFR 180.220 and 1200.220.

1. Instructions for Certification – First Tier Participants:

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction. 2 CFR 180.320.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default. 2 CFR 180.325.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances. 2 CFR 180.345 and 180.350.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900-180.1020, and 1200. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction. 2 CFR 180.330.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 180.300.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov/>). 2 CFR 180.300, 180.320, and 180.325.

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

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default. 2 CFR 180.325.

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

- a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.335;.

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property, 2 CFR 180.800;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification, 2 CFR 180.700 and 180.800; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

- b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

* * * * *

3. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders, and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200). 2 CFR 180.220 and 1200.220.

- a. By signing and submitting this proposal, the prospective lower tier participant is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which

this transaction originated may pursue available remedies, including suspension and/or debarment.

- c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances. 2 CFR 180.365.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900 – 180.1020, and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contractor). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

- e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated. 2 CFR 1200.220 and 1200.332.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 1200.220.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov>), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

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

- i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily

excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment. 2 CFR 180.325.

* * * * *

4. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

a. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(1) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(2) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(3) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

b. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000. 49 CFR Part 20, App. A.

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or

cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

XII. USE OF UNITED STATES-FLAG VESSELS:

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. 46 CFR 381.7.

2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

**ATTACHMENT A - EMPLOYMENT AND MATERIALS
PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY
SYSTEM OR APPALACHIAN LOCAL ACCESS**

ROAD CONTRACTS (23 CFR 633, Subpart B, Appendix B)

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.