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Letting November 18, 2022

Notice to Bidders, Specifications and Proposal

Contract No. 61G82
DUPAGE County
Section 16-00167-00-BR (Naperville)
Route FAU 2552 (Washington Street)
Project 772J-145 ()
District 1 Construction Funds

Prepared by	F
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. November 18, 2022 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. 61G82
   DUPAGE County
   Section 16-00167-00-BR (Naperville)
   Project 772J-145 ()
   Route FAU 2552 (Washington Street)
   District 1 Construction Funds

Removal of existing structure and construciton of two span post-tensioned cast-in-place concrete superstructure bridge on cast-in-place concrete substructure, with HMA removal and replacement, PCC sidewalk with ADA improvements, class D patching, curb & gutter, storm sewer, street scaping, and traffic signals on Washington Street over west branch of DuPage River in Naperville.

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

Omer Osman,
Secretary

CONTRACT 61G82

INDEX
FOR
SUPPLEMENTAL SPECIFICATIONS
AND RECURRING SPECIAL PROVISIONS

Adopted January 1, 2022

This index contains a listing of SUPPLEMENTAL SPECIFICATIONS, frequently used RECURRING SPECIAL PROVISIONS, and LOCAL ROADS AND STREETS RECURRING SPECIAL PROVISIONS.

No ERRATA this year.

SUPPLEMENTAL SPECIFICATIONS

No Supplemental Specifications this year.

RECURRING SPECIAL PROVISIONS

The following RECURRING SPECIAL PROVISIONS indicated by an "X" are applicable to this contract and are included by reference:

LOCAL ROADS AND STREETS RECURRING SPECIAL PROVISIONS

Table of Contents

BDE SPECIAL PROVISIONS

The following special provisions indicated by an "X" are applicable to this contract. An * indicates a new or revised special provision for the letting.

	File Name	Pg.		Special Provision Title	Effective	Revised
	80099	271	☒	Accessible Pedestrian Signals (APS)	April 1, 2003	Jan. 1, 2022
	80274	273	☒	Aggregate Subgrade Improvement	April 1, 2012	April 1, 2022
	80192		☐	Automated Flagger Assistance Device	Jan. 1, 2008	
	80173	276	☒	Bituminous Materials Cost Adjustments	Nov. 2, 2006	Aug. 1, 2017
	80246		☐	Bituminous Surface Treatment with Fog Seal	Jan. 1, 2020	Jan. 1, 2022
	80436	278	☒	Blended Finely Divided Minerals	April 1, 2021	
	80241		☐	Bridge Demolition Debris	July 1, 2009	
	5053I		☐	Building Removal	Sept. 1, 1990	Aug. 1, 2022
	5026I		☐	Building Removal with Asbestos Abatement	Sept. 1, 1990	Aug. 1, 2022
	80384	279	☒	Compensable Delay Costs	June 2, 2017	April 1, 2019
	80198		☐	Completion Date (via calendar days)	April 1, 2008	
	80199		☐	Completion Date (via calendar days) Plus Working Days	April 1, 2008	
	80293		☐	Concrete Box Culverts with Skews > 30 Degrees and Design Fills ≤ 5 Feet	April 1, 2012	July 1, 2016
	80311		☐	Concrete End Sections for Pipe Culverts	Jan. 1, 2013	April 1, 2016
	80261	283	☒	Construction Air Quality – Diesel Retrofit	June 1, 2010	Nov. 1, 2014
	80434		☐	Corrugated Plastic Pipe (Culvert and Storm Sewer)	Jan. 1, 2021	
	80029	286	☒	Disadvantaged Business Enterprise Participation	Sept. 1, 2000	Mar. 2, 2019
	80229	295	☒	Fuel Cost Adjustment	April 1, 2009	Aug. 1, 2017
	80433		☐	Green Preformed Thermoplastic Pavement Markings	Jan. 1, 2021	Jan. 1, 2022
	80422		☐	High Tension Cable Median Barrier	Jan. 1, 2020	Jan. 1, 2022
	80443		☐	High Tension Cable Median Barrier Removal	April 1, 2022	
	80442		☐	Hot-Mix Asphalt	Jan. 1, 2022	Aug. 1, 2022
*	80446		☐	Hot-Mix Asphalt – Longitudinal Joint Sealant	Nov. 1, 2022	
	80444	298	☒	Hot-Mix Asphalt – Patching	April 1, 2022	
	80438		☐	Illinois Works Apprenticeship Initiative – State Funded Contracts	June 2, 2021	Sept. 2, 2021
	80411		☐	Luminaires, LED	April 1, 2019	Jan. 1, 2022
	80045		☐	Material Transfer Device	June 15, 1999	Jan. 1, 2022
	80418		☐	Mechanically Stabilized Earth Retaining Walls	Nov. 1, 2019	Nov. 1, 2020
	80430	299	☒	Portland Cement Concrete – Haul Time	July 1, 2020	
	34261		☐	Railroad Protective Liability Insurance	Dec. 1, 1986	Jan. 1, 2022
*	80445	300	☒	Seeding	Nov. 1, 2022	
	80395		☐	Sloped Metal End Section for Pipe Culverts	Jan. 1, 2018	
	80340		☐	Speed Display Trailer	April 2, 2014	Jan. 1, 2022
	80127	306	☒	Steel Cost Adjustment	April 2, 2014	Jan. 1, 2022
	80397	309	☒	Subcontractor and DBE Payment Reporting	April 2, 2018	
	80391	310	☒	Subcontractor Mobilization Payments	Nov. 2, 2017	April 1, 2019
*	80437	311	☒	Submission of Payroll Records	April 1, 2021	Nov. 1, 2022
	80435		☐	Surface Testing of Pavements – IRI	Jan. 1, 2021	Jan. 1, 2022
	80410		☐	Traffic Spotters	Jan. 1, 2019	
	20338	313	☒	Training Special Provisions	Oct. 15, 1975	Sept. 2, 2021
	80318		☐	Traversable Pipe Grate for Concrete End Sections	Jan. 1, 2013	Jan. 1, 2018
	80429		☐	Ultra-Thin Bonded Wearing Course	April 1, 2020	Jan. 1, 2022
*	80439	316	☒	Vehicle and Equipment Warning Lights	Nov. 1, 2021	Nov. 1, 2022
	80440		☐	Waterproofing Membrane System	Nov. 1, 2021	
	80302	317	☒	Weekly DBE Trucking Reports	June 2, 2012	Nov. 1, 2021
	80427	318	☒	Work Zone Traffic Control Devices	Mar. 2, 2020	
	80071		☐	Working Days	Jan. 1, 2002	

GUIDE BRIDGE SPECIAL PROVISION INDEX/CHECK SHEET

Effective as of the: November 18, 2022 Letting

Pg #	√	File Name	Title	Effective	Revised
	☐	GBSP 4	Polymer Modified Portland Cement Mortar	June 7, 1994	April 1, 2016
320	☒	GBSP 13	High-Load Multi-Rotational Bearings	Oct 13, 1988	Sept 2, 2022
	☐	GBSP 14	Jack and Remove Existing Bearings	April 20, 1994	April 13, 2018
	☐	GBSP 15	Three Sided Precast Concrete Structure	July 12, 1994	Dec 21, 2016
	☐	GBSP 16	Jacking Existing Superstructure	Jan 11, 1993	April 13, 2018
	☐	GBSP 18	Modular Expansion Joint	May 19, 1994	Oct 23, 2020
	☐	GBSP 21	Cleaning and Painting Contact Surface Areas of Existing Steel Structures	June 30, 2003	Oct 23, 2020
	☐	GBSP 25	Cleaning and Painting Existing Steel Structures	Oct 2, 2001	April 15, 2022
	☐	GBSP 26	Containment and Disposal of Lead Paint Cleaning Residues	Oct 2, 2001	Apr 22, 2016
	☐	GBSP 28	Deck Slab Repair	May 15, 1995	April 13, 2018
	☐	GBSP 29	Bridge Deck Microsilica Concrete Overlay	May 15, 1995	April 30, 2021
327	☒	GBSP 30	Bridge Deck Latex Concrete Overlay	May 15, 1995	April 30, 2021
	☐	GBSP 31	Bridge Deck High-Reactivity Metakaolin (HRM) Conc Overlay	Jan 21, 2000	April 30, 2021
	☐	GBSP 33	Pedestrian Truss Superstructure	Jan 13, 1998	Oct 23, 2020
	☐	GBSP 34	Concrete Wearing Surface	June 23, 1994	Oct 4, 2016
	☐	GBSP 45	Bridge Deck Thin Polymer Overlay	May 7, 1997	Feb 6, 2013
	☐	GBSP 53	Structural Repair of Concrete	Mar 15, 2006	Aug 9, 2019
	☐	GBSP 55	Erection of Curved Steel Structures	June 1, 2007	
	☐	GBSP 59	Diamond Grinding and Surface Testing Bridge Sections	Dec 6, 2004	April 15, 2022
	☐	GBSP 60	Containment and Disposal of Non-Lead Paint Cleaning Residues	Nov 25, 2004	Apr 22, 2016
	☐	GBSP 61	Slipform Parapet	June 1, 2007	April 15, 2022
338	☒	GBSP 67	Structural Assessment Reports for Contractor's Means and Methods	Mar 6, 2009	Oct 5, 2015
	☐	GBSP 71	Aggregate Column Ground Improvement	Jan 15, 2009	Oct 15, 2011
	☐	GBSP 72	Bridge Deck Fly Ash or GGBF Slag Concrete Overlay	Jan 18, 2011	April 30, 2021
341	☒	GBSP 78	Bridge Deck Construction	Oct 22, 2013	Dec 21, 2016
	☐	GBSP 79	Bridge Deck Grooving (Longitudinal)	Dec 29, 2014	Mar 29, 2017
	☐	GBSP 81	Membrane Waterproofing for Buried Structures	Oct 4, 2016	March 1, 2019
	☐	GBSP 82	Metallizing of Structural Steel	Oct 4, 2016	Oct 20, 2017
	☐	GBSP 83	Hot Dip Galvanizing for Structural Steel	Oct 4, 2016	Oct 20, 2017
	☐	GBSP 85	Micropiles	Apr 19, 1996	Oct 23, 2020
343	☒	GBSP 86	Drilled Shafts	Oct 5, 2015	Oct 4, 2016
	☐	GBSP 87	Lightweight Cellular Concrete Fill	Nov 11, 2011	Apr 1, 2016
	☐	GBSP 88	Corrugated Structural Plate Structures	Apr 22, 2016	April 13, 2018
	☐	GBSP 89	Preformed Pavement Joint Seal	Oct 4, 2016	Oct 23, 2020
	☐	GBSP 90	Three Sided Precast Concrete Structure (Special)	Dec 21, 2016	April 13, 2018
355	☒	GBSP 91	Crosshole Sonic Logging Testing of Drilled Shafts	Apr 20, 2016	Aug 9, 2019
	☐	GBSP 92	Thermal Integrity Profile Testing of Drilled Shafts	Apr 20, 2016	
359	☒	GBSP 93	Preformed Bridge Joint Seal	Dec 21, 2016	Oct 23, 2020
	☐	GBSP 94	Warranty for Cleaning and Painting Steel Structures	Mar 3, 2000	Nov 24, 2004
	☐	GBSP 96	Erection of Bridge Girders Over or Adjacent to Railroads	Aug 9, 2019	
	☐	GBSP 97	Folded/Formed PVC Pipeliner	April 15, 2022	
	☐	GBSP 98	Cured-in-Place Pipe Liner	April 15, 2022	
	☐	GBSP 99	Spray-Applied Pipe Liner	April 15, 2022	
366	☒	*GBSP 100	Bar Splicers	Sept 2, 2022	

An * indicates a new or revised special provision.

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 on Uniform Traffic Control Devices for Streets and Highways," and 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 Sheet included herein which apply to and govern the construction of Section: 16-00167-00-BR; Project Number: 772J(145); County: DuPage; and in case of conflict with any part or parts of said Specifications, the said Special Provisions shall take precedence and shall govern.

Washington Street Roadway and Bridge Reconstruction
Section: 16-00167-00-BR
County: DuPage
Contract No.: 61G82

LOCATION OF PROJECT

Bridge replacement and pavement reconstruction associated with this project are located in the City of Naperville, DuPage County, on FAU 2552 (Washington Street) from FAU 1522 (Aurora Avenue) to FAU 1487 (Chicago Avenue).

Total gross length and net length of project is 1070.1 feet (0.202 miles)

DESCRIPTION OF PROJECT

The Work consists of furnishing all labor, materials, equipment, and other incidentals necessary for the completion of removal of the existing three span precast prestressed concrete deck beam structure, constructing a new two span post-tensioned cast-in-place superstructure on a new cast-in-place substructure, pavement removal, combination curb and gutter removal, sidewalk removal, aggregate subgrade improvement, subbase granular material, hot-mix asphalt base course, hot mix asphalt binder and surface courses, Portland cement concrete sidewalk, detectable warnings, class D patches, combination concrete curb and gutter, storm sewer, water main, sanitary sewer, streetscaping, traffic signals, and other incidental and miscellaneous items of work in accordance with the Plans, Standard Specifications, and these Special Provisions.

COOPERATION WITH ADJACENT CONTRACTS

The intent of this provision is to inform the Contractor that the City of Naperville is aware of adjacent contracts that are currently scheduled during the same time period as this contract.

City of Naperville, “Downtown Streetscape – Washington Street” from Chicago Avenue to Benton Avenue

The Contractor is required to cooperate with these adjacent contracts in accordance with Section 105.08 of the Standard Specifications and may be required to modify his/her staging operations to meet these requirements.

INSURANCE

Revise Article 107.27 of the Standard Specifications as follows:

Insurance requirements shall be in accordance with Article 107.27 of the Standard Specifications except as herein modified:

(b) Commercial General Liability
(3) Each Occurrence Limit $2,000,000

(e) Pollution Liability Insurance
(1) General Aggregate Limit $2,000,000
(2) Each Occurrence Limit $1,000,000

COMPLETION DATE PLUS WORKING DAYS

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 31st, 2024 except as specified herein.

The Contractor will be allowed to complete all clean-up work and punch list items within 10 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.

WORK DAY

Without specific permission of the City Engineer (City of Naperville) and except for such work as may be required to properly maintain signs, lights, barricades and traffic signals, no work will be permitted on:

A. Weekdays between 12:00 a.m. and 6:00 a.m.
B. Saturdays between 12:00 a.m. and 6:00 a.m.
C. Sundays and Holidays unless approved by the City with 72-hour notice
D. Holidays listed Article 107.09 of the Standard Specifications.

MAINTENANCE OF ROADWAYS

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.

STATUS OF UTILITIES

Effective: June 1, 2016
Revised: January 1, 2020

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.

<u>UTILTIES TO BE ADJUSTED</u>

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.

Prior to Construction
No conflicts to be resolved.

Stage 1

STAGE / LOCATION	TYPE	DESCRIPTION	OWNER	DURATION OF TIME
132+89 / 18RT	Water Main	Storm Sewer Installation	City of Naperville	Will be completed as part of this contract.
134+50 / 35RT	Underground Telephone	Conflicts with Abutment	AT&T	180 Days
135+71 / 41RT	Underground Telephone	Conflicts with Abutment	AT&T	

Stage 2

STAGE / LOCATION	TYPE	DESCRIPTION	RESPONSIBLE AGENCY	DURATION OF TIME
204+29 29RT	Gas Main	Roadway Widening	Nicor	35 Days
134+50 23LT	Underground Telephone	Approach Slab Construction	AT&T	150 Days
134+81 23LT	Underground Telephone	Conflicts with Abutment	AT&T	
134+84 30LT	Water Main	Conflicts with Abutment	City of Naperville	Will be completed as part of this contract.
134+92 16LT	Underground Telephone	Conflicts with Abutment	AT&T	150 Days
135+99 23LT	Underground Telephone	Conflicts with Abutment	AT&T	
136+08 52LT	Underground Telephone	Conflicts with Abutment	AT&T	
136+26 16LT	Underground Telephone	Approach Slab Construction	AT&T	
136+55 27LT	Water Main	Storm Structure Installation	City of Naperville	Will be completed as part of this contract.
136+52 27LT	Underground Telephone	Storm Structure Installation	AT&T	150 days

Stage 1: Days Total Installation – 180 days
Stage 2: Days Total Installation – 150 days

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

Agency/Company Responsible to Resolve Conflict	Name of contact	Phone	E-mail address
Wide Open West	Kevin Rhodes	630-536-3139	kevin.rhodes@wowinc.com
AT&T (Transmission)	Kenneth Colwell	630-383-9249	kc1298@att.com
AT&T (Distribution)	Hector Garcia	630-573-5789	Hg2929@att.com
Comcast	Marth Gieras	224-229-5862	martha_gieras@comcast.com
Nicor Gas	Nick Michaels	630-388-3319	Nick.Michaels@kimley-horn.com
City of Naperville TED	Bill Novak	630-420-6704	novakw@naperville.il.us
City of Naperville Public Works	Dick Dublinski	630-420-6752	dublinskid@naperville.il.us
City of Naperville Public Utilities - Electric	Lucy Podlesny	630-305-5375	podlesnyl@naperville.il.us

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.

Stage 1

STAGE / LOCATION	TYPE	DESCRIPTION	OWNER
204+29 29RT	Gas Main	Storm Sewer Installation	Nicor
132+82 33RT	Underground Telephone	Storm Sewer Installation	AT&T

STAGE / LOCATION	TYPE	DESCRIPTION	OWNER
132+94 29RT	Underground Telephone	Storm Sewer Installation	AT&T
132+91 23RT	Gas Main	Storm Sewer Installation	AT&T
132+89 19RT	Water Main	Storm Sewer Installation	City of Naperville
136+35 8RT	Gas Main	Sanitary Sewer Installation	Nicor
136+40 31RT	Water Main	Storm Sewer Installation	City of Naperville
136+48 32RT	Gas Main	Storm Sewer Installation	Nicor
136+56 33RT	Fiber Optic	Storm Sewer Installation	AT&T
136+71 31RT	Water Main	Storm Sewer Installation	City of Naperville
138+49 12RT	Gas Main	Sanitary Sewer Installation	Nicor
138+61 23RT	Underground Telephone	Sanitary Sewer Installation	AT&T
138+64 26RT	Fiber Optic	Sanitary Sewer Installation	AT&T
138+64 11RT	Gas Main	Sanitary Sewer Installation	Nicor
138+64 11RT	Sanitary	Roadway Patching	City of Naperville
138+70 17RT	Sanitary	Roadway Patching	City of Naperville
137+68 28LT	Water Main	Storm Sewer Installation	City of Naperville
138+86 14RT	Water Main	Roadway Patching	City of Naperville
138+84 7RT	Water Main	Roadway Patching	City of Naperville
138+79 14LT	Water Main	Roadway Patching	City of Naperville
138+94 6LT	Water Main	Roadway Patching	City of Naperville
139+01 3LT	Water Main	Roadway Patching	City of Naperville
139+11 7LT	Water Main	Roadway Patching	City of Naperville
302+53 4RT	Gas Main	Sanitary Sewer Installation	Nicor

Stage 2

STAGE / LOCATION	TYPE	DESCRIPTION	OWNER
204+29 29RT	Gas Main	Storm Sewer Installation	Nicor
132+20 44LT	Underground Telephone	Storm Sewer Installation	AT&T
202+99 25RT	Gas Main	Roadway Widening	Nicor
204+52 13RT	Water Main	Storm Sewer Installation	City of Naperville
204+25 20LT	Underground Telephone	Storm Sewer Installation	AT&T
204+57 18LT	Fiber Optic	Storm Sewer Installation	WOW
132+86 31LT	Fiber Optic	Storm Sewer Installation	WOW
132+87 16LT	Underground Telephone	Storm Sewer Installation	AT&T
204+23 23RT	Gas Main	Roadway Widening	Nicor
203+95 25RT	Gas Main	Roadway Widening	Nicor
132+92 43LT	Underground Telephone	Storm Sewer Installation	AT&T
133+62 33 LT	Underground Telephone	Roadway Widening	AT&T
136+25 50LT	Underground Telephone	Storm Sewer Installation	AT&T
136+43 16LT	Water Main	Electrical Duct Installation	City of Naperville
136+76 16LT	Water Main	Electrical Duct Installation	City of Naperville
137+60 15LT	Sanitary	Storm Sewer Installation	City of Naperville
137+60 14LT	Underground Telephone	Electrical Duct Installation	AT&T
137+97 25LT	Water Main	Electrical Duct Installation	City of Naperville
138+26 21LT	Gas Main	Electrical Duct Installation	Nicor
138+29 20LT	Water Main	Electrical Duct Installation	City of Naperville
138+29 21LT	Underground Telephone	Electrical Duct Installation	AT&T
138+28 27LT	Fiber Optic	Sanitary Sewer Installation	AT&T

STAGE / LOCATION	TYPE	DESCRIPTION	OWNER
138+29 27LT	Water Main	Sanitary Sewer Installation	City of Naperville
138+32 76LT	Water Main	Sanitary Sewer Installation	City of Naperville
138+41 2LT	Water Main	Sanitary Sewer Installation	City of Naperville
132+88 6LT	Fiber Optic	Storm Sewer Installation	WOW

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
Wide Open West	Kevin Rhodes	630-536-3139	kevin.rhodes@wowinc.com
AT&T (Transmission)	Kenneth Colwell	630-383-9249	kc1298@att.com
AT&T (Distribution)	Hector Garcia	630-573-5789	Hg2929@att.com
Comcast	Marth Gieras	224-229-5862	martha_gieras@comcast.com
Nicor Gas	Nick Michaels	630-388-3319	Nick.Michaels@kimley-horn.com
City of Naperville Dispatcher	Patrick Samek	630-420-4122	N/A
City of Naperville Utility Supervisor	William Bolster	630-420-4122	BolsterB@naperville.il.us

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 in the action column 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 Department's contractor is responsible for contacting J.U.L.I.E. prior to all excavation work.

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, Details, Quality Standard for Work Zone Traffic Control Devices, 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:

701006	701101	701301	701311	701427	701501	701602
701611	701701	701801	701901	704001		

DETAILS:

TRAFFIC CONTROL AND PROTECTION FOR SIDE ROADS, INTERSECTIONS AND DRIVEWAY (TC-10)
DISTRICT ONE TYPICAL PAVEMENT MARKINGS (TC-13)
TRAFFIC CONTROL AND PROTECTION AT TURN BAYS (TO REMAIN OPEN TO TRAFFIC) (TC-14)
SHORT TERM PAVEMENT MARKING LETTERS AND SYMBOLS (TC-16)
ARTERIAL ROAD INFORMATION SIGN (TC-22)
DRIVEWAY ENTRANCE SIGN (TC-26)

SPECIAL PROVISIONS:

MAINTENANCE OF ROADWAY
PUBLIC CONVENIENCE AND SAFETY

TRAFFIC CONTROL AND PROTECTION (ARTERIALS)
AGGREGATE SURFACE COURSE FOR TEMPORARY ACCESS
TEMPORARY INFORMATION SIGNING
TEMPORARY PAVEMENT
WORK ZONE TRAFFIC CONTROL DEVICES (BDE 80427)
VEHICLE AND EQUIPMENT WARNING LIGHTS (BDE 80439)
COORDINATION FOR COMMERCIAL PROPERTY SERVICES

PUBLIC CONVENIENCE AND SAFETY

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."

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 lump sum price for TRAFFIC CONTROL AND PROTECTION (SPECIAL).

Temporary pavement markings will be paid for separately unless shown on a Standard.

COORDINATION FOR COMMERCIAL PROPERTY SERVICES

The Contractor shall provide access for weekly garbage pickup to all commercial properties adjacent to this project. Coordination with the property owner shall be completed prior to moving permanent garbage locations to a location approved by the Engineer. All designated temporary garbage locations shall include fencing, fabric screening, gates, barricades, cleaning and maintenance.

The Contractor shall provide access to the alley at 319 South Washington Street for cleaning of all grease traps. The dates and times of cleaning, which is expected once a month, shall be coordinated with the adjacent property owners and the Engineer. The Contractor shall provide access through the work zone to allow for the cleaning.

The Contractor shall provide pedestrian access to the basement at 8 West Chicago Avenue (Lantern Bar) at all times other than for a 2-week period to complete work on the basement steps. The closure shall be coordinated with the Engineer and property owner prior to any closure.

The Contractor shall always maintain emergency access to the alley from the rear door at 10 West Chicago Avenue (Feature's Bar & Grill). Both during and after work hours, the contractor shall make sure that the exit is clear of any construction materials.

Basis of Payment: All work will not be paid separately but shall be included in the cost of TRAFFIC CONTROL AND PROTECTION (SPECIAL).

PROTECTION OF EXISTING TREES

The Contractor shall be responsible for taking measures to minimize damage to the tree limbs, tree trunks, and tree roots at each work site. All such measures shall be included in the contract price for other work except that payment will be made for TEMPORARY FENCE, TREE ROOT PRUNING, and TREE PRUNING.

All work, materials and equipment shall conform to Section 201 and 1081 of the Standard Specifications except as modified herein.

A. Earth Saw Cut of Tree Roots (Root Pruning):

1. Whenever proposed excavation falls within a drip-line of a tree, the Contractor shall:

a. Root prune 6-inches behind and parallel to the proposed edge of trench a neat, clean vertical cut to a minimum depth directed by the Engineer through all affected tree roots.

b. Root prune to a maximum width of 4-inches using an approved mechanical root pruning saw. Trenching machines will not be permitted.

c. Exercise care not to cut any existing utilities.

d. If during construction it becomes necessary to expose tree roots which have not been precut, the Engineer shall be notified and the Contractor shall provide a clean, vertical cut at the proper root location, nearer the tree trunk, as necessary, by means of hand-digging and trimming with chain saw or hand saw. Ripping, shredding, shearing, chopping or tearing will not be permitted.

e. Top Pruning: When thirty percent (30%) or more of the root zone is pruned, an equivalent amount of the top vegetative growth or the plant material shall be pruned off within one (1) week following root pruning.

2. Whenever curb and gutter is removed for replacement, or excavation for removal of or construction of a structure is within the drip line/root zone of a tree, the Contractor shall:

a. Root prune 6-inches behind the curbing so as to neatly cut the tree roots.

b. Depth of cut shall be 12 inches for curb removal and replacement and 24 inches for structural work. Any roots encountered at a greater depth shall be neatly saw cut at no additional cost.

c. Locations where earth saw cutting of tree roots is required will be marked in the field by the Engineer.

3. All root pruning work is to be performed through the services of a licensed arborist to be approved by the Engineer.

Root pruning will be paid for at the contract unit price each for TREE ROOT PRUNING, which price shall be payment for all labor, materials and equipment.

Tree limb pruning will be paid for at the contract unit price per each for TREE PRUNING (1 TO 10 INCH DIAMETER) and/or TREE PRUNING (OVER 10 INCH DIAMETER).

B. Temporary Fence:

1. The Contractor shall erect a temporary fence around all trees within the construction area to establish a "tree protection zone" before any work begins or any material is delivered to the jobsite. No work is to be performed (other than root pruning), materials stored or vehicles driven or parked within the "tree protection zone".

2. The exact location and establishment of the "tree protection zone" fence shall be approved by the Engineer prior to setting the fence.

3. The fence shall be erected on three sides of the tree at the drip-line of the tree or as determined by the Engineer.

4. All work within the "tree protection zone" shall have the Engineer's prior approval. All slopes and other areas not regarded should be avoided so that unnecessary damage is not done to the existing turf, tree root system ground cover.

5. The grade within the "tree protection zone" shall not be changed unless approved by the Engineer prior to making said changes or performing the work.

The fence shall be similar to wood lath snow fence (48 inches high), plastic poly-type or and other type of highly visible barrier approved by the Engineer. This fence shall be properly maintained and shall remain up until final restoration, unless the Engineer directs removal otherwise. Tree fence shall be supported using T-Post style fence posts. Utilizing re-bar as a fence post will not be permitted.

Temporary fence will be paid for at the contract unit price per foot for TEMPORARY FENCE.

C. Tree Limb Pruning:

1. The Contractor shall inspect the work site in advance and arrange with the Roadside Development Unit (847.705.4171) to have any tree limbs pruned that might be damaged by equipment operations at least one week prior to the start of construction. Any tree limbs that are broken by construction equipment after the initial pruning must be pruned correctly within 72 hours.

2. Top Pruning: When thirty percent (30%) or more of the root zone of a tree is pruned, an equivalent amount of the top vegetative growth or the plant material shall be pruned off within one (1) week following root pruning.

Tree limb pruning will be paid for at the contract unit price per each for TREE PRUNING (1 TO 10 INCH DIAMETER) and/or TREE PRUNING (OVER 10 INCH DIAMETER).

D. Removal of Driveway Pavement and Sidewalk:

1. In order to minimize the potential damage to the tree root system(s), the Contractor will not be allowed to operate any construction equipment or machinery within the "tree protection zone" located between the curb or edge of pavement and the right-of-way property line.

2. Sidewalk to be removed in the areas adjacent to the "tree protection zones" shall be removed with equipment operated from the street pavement. Removal equipment shall be Gradall (or similar method), or by hand or a combination of these methods. The method of removal shall be approved by the Engineer prior to commencing any work.

3. Any pavement or pavement related work that is removed shall be immediately disposed of from the area and shall not be stockpiled or stored within the parkway area under any circumstances.

E. Backfilling:

1. Prior to placing the topsoil and/or sod, in areas outside the protection zone, the existing ground shall be disked to a depth no greater than one (1"), unless otherwise directed by the Engineer. No grading will be allowed within the drip-line of any tree unless directed by the Engineer.

F. Damages:

1. In the event that a tree not scheduled for removal is injured such that potential irreparable damage may ensure, as determined by the Roadside Development Unit, the Contractor shall be required to remove the damage tree and replace it on a three to one (3:1) basis, at his own expense. The Roadside Development Unit will select replacement trees from the pay items already established in the contract.

2. The Contractor shall place extreme importance upon the protection and care of trees and shrubs which are to remain during all times of this improvement. It is of paramount importance that the trees and shrubs which are to remain are adequately protected by the Contractor and made safe from harm and potential damage from the operations and construction of this improvement. If the Contractor is found to be in violation of storage or operations within the "tree protection zone" or construction activities not approved by the Engineer, a penalty shall be levied against the Contractor with the monies being deducted from the contract. The amount of the penalty shall be two hundred fifty dollars ($250.00) per occurrence per day.

TOPSOIL FURNISH AND PLACE, 12”

Description. This work shall consist of furnishing, transporting, preparing, and placing topsoil imported from offsite sources. The work shall be completed in accordance with Section 211 of the Standard Specifications except as specified herein, as shown on the plans, and as directed by the Engineer.

Materials. Topsoil shall be provided in accordance with Article 1081.05 of the Standard Specifications with the exception that the minimum organic content shall be 4 percent.

Import topsoil from offsite sources. Obtain topsoil displaced from naturally well-drained construction or mining sites where topsoil occurs at least 6 inches deep; do not obtain from bogs or marshes.

Construction. This work shall be performed in accordance with Articles 211.04 and 211.05 of the Standard Specifications except as modified herein.

Place topsoil and complete finish grading to meet grades as shown on the plans. For new planting bed areas, excavate to a depth of 12 inches and provide topsoil to meet the grades as indicated on the plans and details. Place topsoil to a depth of 12 inches as directed by the engineer. Amend topsoil in all planting bed areas with a 3-inch depth of Soil Conditioner to meet the requirements specified herein.

Method of Measurement. The contract unit price shall be measured per square yard in place, including importing and placing topsoil to a depth of 12 inches in all planting bed areas.

Basis of Payment. This item shall be paid for at the contract unit price per square yard for TOPSOIL FURNISH AND PLACE, 12”.

SUPPLEMENTAL WATERING

This work will include watering turf, trees, shrubs, vines, and perennials at the rates specified and as directed by the Engineer.

Schedule: Watering will only begin after the successful completion of all period of establishment requirements. Water trees, shrubs, vines, perennials, plugs, and sod every 7 days throughout the growing season (April 1 to November 30). The Engineer may direct the Contractor to adjust the watering rate and frequency depending upon weather conditions.

Watering must be completed in a timely manner. When the Engineer directs the Contractor to do supplemental watering, the Contractor must begin the watering operation within 48 hours of notice. The Contractor shall give an approximate time window of twenty-four (24) hour of when they will begin at the work location to the Engineer. The Engineer shall be present during the watering operation. A minimum of 10 units of water per day must be applied until the work is complete.

Should the Contractor fail to complete the work on a timely basis or within such extended times as may have been allowed by the Department, the Contractor shall be liable to the Department liquidated damages as outlined in the "Failure to Complete Plant Care and Establishment Work on Time" special provision.

In fixing the damages as set out herein, the desire is to establish a mode of calculation for the work since the Department's actual loss, in the event of delay, cannot be predetermined, would be difficult of ascertainment, and a matter of argument and unprofitable litigation. This said mode is an equitable rule for measurement of the Department's actual loss and fairly takes into account the loss of the trees if the watering is delayed. The Department shall not be required to provide any actual loss in order to recover these liquidated damages provided herein, as said damages are very difficult to ascertain. Furthermore, no provision of this clause shall be construed as a penalty, as such is not the intention of the parties.

A calendar day is every day shown on the calendar and starts at 12:00 midnight and ends at the following 12:00 midnight, twenty-four hours later.

Source of Water: The Contractor shall notify the Engineer of the source of water used and provide written certification that the water does not contain chemicals harmful to plant growth.

Rate of Application: The normal rates of application for watering are as follows. The Engineer will adjust these rates as needed depending upon weather conditions.

35 gallons per tree
25 gallons per large shrub
15 gallons per small shrub
4 gallons per vine
3 gallons per perennial plant (Gallon)
2 gallons per perennial plant (Quart)
2 gallons per perennial plant (Plug)
3 gallons per square foot for Sodded Areas

Method of Application: A spray nozzle that does not damage small plants must be used when watering all vegetation. Water shall be applied at the base of the plant to keep as much water as possible off plant leaves. An open hose may be used to water trees, shrubs, and seedlings if mulch and soil are not displaced by watering. The water shall be applied to individual plants in such a manner that the plant hole shall be saturated without allowing the water to overflow beyond the earthen saucer. Watering of plants in beds shall be applied in such a manner that all plant holes are uniformly saturated without allowing the water flow beyond the periphery of the bed. Water shall slowly infiltrate into soil and completely soak the root zone. The Contractor must supply metering equipment as needed to assure the specified application rate of water.

Method of Measurement: Supplemental watering will be measured in units of 1000 gallons (3,785 liters) of water applied as directed.

Basis of Payment: This work will be paid for at the contract unit price per unit of SUPPLEMENTAL WATERING, measured as specified.

AGGREGATE SURFACE COURSE FOR TEMPORARY ACCESS

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 (3.6 m). The minimum compacted thickness shall be 6 in. (150 mm). The maximum grade shall be eight percent, except as required to match the existing grade.

(b) Commercial Entrance. The minimum width shall be 24 ft (7.2 m). The minimum compacted thickness shall be 9 in. (230 mm). The maximum grade shall be six percent, except as required to match the existing grade.

(c) Road. The minimum width shall be 24 ft (7.2 m). The minimum compacted thickness shall be 9 in. (230 mm). 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) or 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, sixty percent 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 forty percent of the pay item will be paid upon the permanent removal of the temporary access."

ADJUSTMENTS AND RECONSTRUCTIONS

Effective: March 15, 2011

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-1 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-1 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-1 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-1 concrete, unless otherwise noted in the plans, not less than 9 in. (225 mm) 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."

FRICTION AGGREGATE (D-1)

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	Allowed Alone or in Combination [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	Allowed Alone or in Combination [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	Allowed Alone or in Combination [5/ 6/]: Crushed Gravel Carbonate Crushed Stone[2/] Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Concrete[3/]

<table>
<tr><th>Use</th><th>Mixture</th><th colspan="2">Aggregates Allowed</th></tr>
<tr><td>HMA
High ESAL
Low ESAL</td><td>C Surface and Binder
IL-9.5
IL-9.5FG
or IL-9.5L</td><td colspan="2"><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/]</td></tr>
<tr><td rowspan="5">HMA
High ESAL</td><td rowspan="5">D Surface and Binder
IL-9.5
or IL-9.5FG</td><td colspan="2"><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/]</td></tr>
<tr><td colspan="2"><u>Other Combinations Allowed:</u></td></tr>
<tr><td>Up to...</td><td>With...</td></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>
<tr><td rowspan="5">HMA
High ESAL</td><td rowspan="5">E Surface
IL-9.5

SMA
Ndesign 80
Surface</td><td colspan="2"><u>Allowed Alone or in Combination</u> [5/ 6/]:

Crushed Gravel
Crystalline Crushed Stone
Crushed Sandstone
Crushed Slag (ACBF)
Crushed Steel Slag

No Limestone.</td></tr>
<tr><td colspan="2"><u>Other Combinations Allowed:</u></td></tr>
<tr><td>Up to...</td><td>With...</td></tr>
<tr><td>50% Dolomite[2/]</td><td>Any Mixture E aggregate</td></tr>
</table>

<table>
<tr><td>Use</td><td>Mixture</td><td colspan="2">Aggregates Allowed</td></tr>
<tr><td rowspan="2"></td><td rowspan="2"></td><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>
<tr><td rowspan="4">HMA
High ESAL</td><td rowspan="4">F Surface
IL-9.5

SMA
Ndesign 80
Surface</td><td colspan="2"><u>Allowed Alone or in Combination</u> [5/ 6/]:

Crystalline Crushed Stone
Crushed Sandstone
Crushed Slag (ACBF)
Crushed Steel Slag
No Limestone.</td></tr>
<tr><td colspan="2"><u>Other Combinations Allowed</u>:</td></tr>
<tr><td>Up to...</td><td>With...</td></tr>
<tr><td>50% Crushed Gravel[2/] or Dolomite[2/]</td><td>Crushed Sandstone, Crushed Slag (ACBF), Crushed Steel Slag, or Crystalline Crushed Stone</td></tr>
</table>

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."

GROUND TIRE RUBBER (GTR) MODIFIED ASPHALT BINDER (D-1)

Effective: June 26, 2006
Revised: December 1, 2021

Add the following to the end of article 1032.05 of the Standard Specifications:

"(c) Ground Tire Rubber (GTR) Modified Asphalt Binder. A quantity of 10.0 to 14.0 percent GTR (Note 1) shall be blended by dry unit weight with a PG 64-28 to make a GTR 70-28 or a PG 58-28 to make a GTR 64-28. The base PG 64-28 and PG 58-28 asphalt binders shall meet the requirements of Article 1032.05(a). Compatible polymers may be added during production. The GTR modified asphalt binder shall meet the requirements of the following table.

Test	Asphalt Grade GTR 70-28	Asphalt Grade GTR 64-28
Flash Point (C.O.C.), AASHTO T 48, °F (°C), min.	450 (232)	450 (232)
Rotational Viscosity, AASHTO T 316 @ 275 °F (135 °C), Poises, Pa·s, max.	30 (3)	30 (3)
Softening Point, AASHTO T 53, °F (°C), min.	135 (57)	130 (54)
Elastic Recovery, ASTM D 6084, Procedure A (sieve waived) @ 77 °F, (25 °C), aged, ss, 100 mm elongation, 5 cm/min., cut immediately, %, min.	65	65

Note 1. GTR shall be produced from processing automobile and/or light truck tires by the ambient grinding method. GTR shall not exceed 1/16 in. (2 mm) in any dimension and shall contain no free metal particles or other 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, *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

Add the following to the end of Note 1. 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 must be capable of providing continuous mechanical mixing throughout by continuous agitation and 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."

HOT-MIX ASPHALT BINDER AND SURFACE COURSE (D-1)

Effective: November 1, 2019
Revised: December 1, 2021

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 percent passing the 1/2 in. (12.5mm) sieve."

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

"(e) Absorption. For SMA the coarse aggregate shall also have water absorption ≤ 2.0 percent."

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. Reclaimed Asphalt Shingles (RAS) may be used in Stone Matrix Asphalt (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 percent 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 Adjusted Job Mix Formula (AJMF) the percent passing the #8 (2.36 mm) sieve shall not be adjusted below 34 percent.
6/ When the mixture is used as a binder, the maximum shall be increased by 0.5 percent 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 percent, for IL-4.75 and SMA mixtures it shall be 3.5 percent and for Stabilized Subbase it shall be 3.0 percent 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.

	Voids in the Mineral Aggregate (VMA), % Minimum for Ndesign				
Mix Design	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 percent 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 Stone Matrix Asphalt (SMA) mixtures which contain aggregate having absorptions greater than or equal to 2.0 percent, or which contain steal slag sand, shall have minimum surge bin storage plus haul time of 1.5 hours."

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 (2.14 m) wide and a weight of 315 pound per linear inch (PLI) (5.63 kg/mm) 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. (50 N/mm). The 3W and T_B rollers shall be operated at a uniform speed not to exceed 3 mph (5 km/h), with the drive roll for T_B rollers nearest the paver and maintain an effective rolling distance of not more than 150 ft (45 m) 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 (275 metric tons), except for SMA mixtures it will be 400 ton (363 metric 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 third 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."

HOT-MIX ASPHALT (D-1)

Effective: January 1, 2022
Revised: August 1, 2022

Replace Article 1030.09(g)(1) of the Standard Specifications with the following:

"(1) The Contractor shall sample approximately 150 lb (70 kg) of mix as required for the Department's random mixture verification tests according to Article 1030.09(h)(1)."

Replace the second sentence of Article 1030.09(h)(1) of the Standard Specifications with the following:

"The Engineer will randomly identify one sample for each 3,000 tons (2,720 metric tons) of mix, with a minimum of one sample per mix. If the remaining mix quantity is 600 tons (544 metric tons) or less, the quantity will be combined with the previous 3,000 tons (2,720 metric tons) in the Engineer's random sample identification. If the required tonnage of a mixture for a single pay item is less than 250 tons (225 metric tons) in total, the Engineer will waive mixture verification tests."

Add the following to the end of the third paragraph of Article 1030.09(h)(2) of the Standard Specifications:

"The HMA maximum theoretical specific gravity (G_{mm}) will be based on the Department mixture verification test. If there is more than one Department mixture verification G_{mm} test, the G_{mm} will be based on the average of the Department test results."

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 ± 0.5 percent 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 (27 kg) of additional material for the Department to conduct Hamburg wheel testing and approximately 80 lb (36 kg) 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."

PORTLAND CEMENT CONCRETE SIDEWALK 5 INCH

Add the following to Article 424.06 of the Standard Specifications:

The thickness of the Portland cement shall be increased to 6 inches at curb ramps. The thickness of the Portland cement shall be increased to 8 inches at driveways.

Add the following to Article 424.13 of the Standard Specifications:

The additional thickness at curb ramps and driveways will not be paid for separately but shall be included in the cost of the PORTLAND CEMENT CONCRETE SIDEWALK, of the thickness specified.

DUCTILE IRON WATER MAIN

Description
The Contractor shall furnish and install the proposed watermain of the diameter specified at the locations shown on the plans. The water main shall include excavation, granular CA-11 bedding, installation of the watermain, iron fittings, restraint devices, polyethylene wrap, testing and chlorination of the water main, backfill and compaction of the trench, topsoil replacement and all incidental items required for a complete and operational water main.

In areas where existing water main requires removal to install piping, the contractor shall be responsible for removal of watermain to 6-feet below grade as shown on plans. Any existing pipeline that have a portion of the pipe removed and are to remain in service shall be properly restrained with thrust block to prevent movement of the remaining pipe. This work shall be considered incidental to new water main installation.

Water main pipe shall be Class 52 ductile iron pipe, 250 pressure class minimum, conforming to ANSI/AWWA C151/A21.51-02 (or latest edition).

All ductile iron pipe and/or fittings shall have an interior cement mortar lining and bituminous seal coat conforming to the requirements of ANSI/AWWA C104/A21.4-03 (or latest edition).

Joints for water main shall be rubber push-on joints or mechanical joints, conforming to ANSIAWWA C111/A21.11-07 (or latest edition).

Stainless steel nuts, bolts/T-bolts, and washers, Type 304 or better, will be required on all water main installations. This would apply to hydrants, tapping sleeves, valves, fittings, restraint, and other appurtenances buried or in valve vaults. Mechanical joints and restraint glands require 304

stainless steel T-bolts. An anti-seize compound shall be factory applied to nuts or bolts – any damage to this coating shall be repaired with field applied anti-seize compound that is a molybdenum-base lubricant, Bostik Never-Seez.

Push-on Joints

Sections of water main pipe shall be connected by means of push-on joints, consisting of bells cast integrally with the pipe, which have interior angular recesses conforming to the shape and dimension of a rubber sealing gasket. The interior dimensions of which is such that it will admit the insertion of the spigot end of the joining pipe in a manner that will compress the gasket tightly between the bell of the pipe and the inserted spigot, thus securing the gasket and sealing the joint. Such push-on joints shall be of the following makes or equal, conforming to the requirements of AWWA C111 (ANSI A21.11).

(1) American Cast Iron Pipe Company- Fastite
(2) Tyton - U.S. Pipe and Foundry Co.

The lubricant used in conjunction with the push-on joints shall be of material that is recommended by the suppliers specified above, or an acceptable commercially processed animal fat or vegetable shortening.

Restrained Joints

Restrained joint pipe shall be installed per the following table:

THRUST RESTRAINT TABLE

TYPE	6''	8''	10''	12''
Horizontal Bend, 11.25°	1	1	2	2
Horizontal Bend, 22.5°	2	2	3	3
Horizontal Bend, 45°	3	4	6	6
Horizontal Bend, 90°	7	9	11	13
Vertical Up Bend, 11.25°	1	1	2	2
Vertical Up Bend, 22.5°	2	2	3	3
Vertical Up Bend, 45°	3	4	5	6
Vertical Up Bend, 90°	7	9	11	15
Vertical Down Bend, 11.25°	2	2	3	3
Vertical Down Bend, 22.5°	3	4	5	6
Vertical Down Bend, 45°	7	9	10	12
Vertical Down Bend, 90°	15	20	24	29
Tee 16''R x 12''B	-	-	-	11
Tee 12'' Equal	-	-	-	12
Tee 12''R x 10''B	-	-	9	-
Tee 12''R x 8''B	-	6	-	-
Tee 12''R x 6''B	2	-	-	-
Tee 10'' Equal	-	-	9	-
Tee 10''R x 8''B	-	6	-	-
Tee 10''R x 6''B	3	-	-	-
Tee 8'' Equal	-	7	-	-
Tee 8''R x 6''B	4	-	-	-
Tee 6'' Equal	5	-	-	-
Reducer 12'' x 10''	-	-	-	5
Reducer 10'' x 8''	-	-	5	-
Reducer 8'' x 6''	-	5	-	-
Dead End	8	10	15	19

Notes:
1. Lengths in feet per DIPRA thrust restraint design (Soil = Clay 1, Lay Condition = 4, Pressure = 58 psi, SF = 1.5).
2. Bend lengths required on both sides of fitting.
3. Tee lengths required on tee branch.
4. Reducer lengths required on larger pipe.

Restrained joint pipe shall be 250 pressure class, minimum Class 52 ductile iron pipe with manufacturer designed restrained flexible joints and smoothly contoured bells. Joints shall be boltless, flexible, restrained and shall be U.S Pipe- TR Flex or American- Flex Ring Joints.

Restrained joint gaskets are not acceptable alternatives.

Mechanical Joints

Restraint of mechanical joints shall be incorporated into the follower gland and shall include a mechanism to impart multiple wedging action that increases with increasing pipe pressure. Follower glands with restraining mechanisms shall be manufactured of ductile iron conforming to ASTM A536. Dimensions of the follower gland shall conform to and shall be compatible with mechanical joints conforming to ANSI/AWWA C111/A21.11. The mechanical joint restraint device shall have a working pressure of 250 psig and a minimum safety factor of 2:1. All retainer glands when required to restrain valves, fittings, hydrants, and pipe joints shall be mechanical joint wedge action type MEGALUG 1100 Series as manufactured by EBBA Iron, Inc. or UNI-FLANGE BLOCKBUSTER 1400 SERIES as manufactured by Ford Meter Box Co. and shall be for use on ductile iron pipe conforming to ANSI/AWWA C151/A21.51, for nominal pipe sizes 3" through 48".

Fittings shall be cement lined, tar coated ductile iron with mechanical joints rated 250 psi per AWWA C110/ANSI 21.10. (American, U.S. Pipe). Ductile iron compact fittings 3 inches to 24 inches in diameter shall be in accordance with ANSI/AWWA C153/A21.53-00 (or latest edition).

The water main shall be installed as detailed on the plans and in accordance with the applicable provisions of the Standard Specifications for Water and Sewer Main Construction in Illinois. The water main shall be installed to the grades shown on the plans and shall have a nominal minimum depth of cover of five feet (5'-0"). The excavation for the water main could be made using trenching equipment or other suitable excavating equipment.

If the excavation has been made deeper than necessary, the water main shall be laid at the lower depth, and no additional cost shall be charged to the OWNER for the extra excavation, or for subsequent adjustments to fire hydrants, valve vaults. All excavated materials not needed for backfilling the trenches shall be disposed of by the Contractor.

Backfill (Non-Paved Areas)

Non-paved areas shall be backfilled from a point above the bedding with originally excavated material free from rocks, frozen material or large clods and shall be carefully placed and compacted to prevent damage to or the dislodging of the water main pipe. Cost of this backfilling shall be considered incidental to the water main construction.

After backfill is completed all trenches within the non-paved areas shall be compacted by jetting and watersoaking in accordance with Section 20-4.06B of the Standard Specifications for Water and Sewer Main Construction in Illinois, or by other approved methods set forth in said Standard Specifications.

When work is not on going and backfilling has not been completed to bring the trench back to original grade, excavation areas greater than 14" and less than 3' in depth shall be completely fenced. Excavations greater than 3' shall be plated.

Backfill (Paved Areas)

The work shall consist of backfilling and compacting the trench with a coarse aggregate material within 2' of any existing or proposed paved areas at the locations shown on the plans.

The aggregate shall conform to the requirements of Article 1004.01 of the IDOT Standard Specifications and the following specific requirements:

a. Description: - The course aggregate shall be gravel, crushed gravel, crushed stone or crushed sandstone.

b. Quality: **-** The coarse aggregate shall be Class-C quality or better. Recycled aggregate will not be accepted.

c. Gradation: - The course aggregate gradation shall be CA-6 according to Standard Specifications

Aggregate material shall be placed in **maximum** 12-inch layers, loose measurement and compacted by ramming or tamping tools approved by the engineer. The backfill shall be placed and compacted as specified to the subgrade elevation.

The method used for backfilling and compacting the aggregate material shall produce 95% standard proctor compaction. Should the Contractor's methods not produce acceptable compaction results the Contractor will be required to alter their compaction method to meet requirements and no additional compensation will be allowed.

This work shall be measured in cubic yards in accordance with Section 208 of the Standard Specifications for Road and Bridge Construction. The top of the trench for payment purposes shall be the proposed pavement or proposed pavement patch subgrade, or within 6" of final grade in landscaped areas to allow placement of topsoil a minimum of 6" thick. Trench backfill at valve vaults, greater than calculated amount as indicated above, shall be included in valve vault price. Maximum payable trench width shall be:

Inside Diameter of Pipe (IN)	Maximum Trench Width for Payment (FT)
6	3.58
8	3.78
12	4.17
24	5.33

Actual dimensions will be field measured and require material ticket back-up in which cubic yards shall be calculated using a 1.8 ton/cy conversion factor. Final payment quantities will not exceed quantities verified with delivery tickets and any trench backfill required in excess of the maximum calculated quantity specified herein shall be furnished by the Contractor

at his/her expense. Actual trench excavation may vary due to depth, soil conditions and to meet OSHA and all other State, Federal, and Local safety requirements. No additional compensation shall be made for this item and such work shall be considered incidental to the pay item.

Payment will be made at the contract unit price per cubic yard for TRENCH BACKFILL. This shall include excavation, installation, compaction, materials, disposal of excavated material and all other incidentals required to install this item.

Construction

Maximum deflections at the pipe joints and laying radius for various pipe lengths are as found in the following standards:

Ductile Iron Pipe Mechanical Joints AWWA C600
Ductile Iron Pipe Push-On Joints AWWA C600

At no time shall the deflection of the pipe joints exceed the manufacturer's maximum recommended deflection.

Where a water main must cross a sanitary or storm sewer, the invert of the water main shall be a minimum of 18 inches above the crown of the sewer for at least 10 feet each side of the crossing, in accordance with IEPA separation requirements.

Where proper vertical separation over the storm sewer is not obtainable, or the water main crosses under the storm sewer or sanitary sewer, the storm or sanitary sewer shall be replaced with water main grade pipe at least 10 feet on either side of the crossing. The water main shall be backfilled with granular material.

Water in the trench shall be removed during pipe laying and jointing operations. Provisions shall be made to prevent floating of the pipe. Trench water shall not be allowed to enter the pipe at any time.

Adequate provisions shall be made for safely storing and protecting all water pipe prior to the actual installation in the trench. Care shall be taken to prevent damage to the pipe castings, both inside and out. Provisions shall be made to keep the inside of the pipe clean throughout its storage period and to keep mud and/or debris from being deposited therein.

All pipe shall be thoroughly cleaned on the inside before laying. Proper equipment shall be used for the safe handling, conveying and laying of the pipe. All pipe shall be carefully lowered into the trench, piece by piece, by means of suitable tools or equipment, in such a manner as to prevent damage to water main materials and protective coatings and linings. Under no circumstances shall water main material be dropped or dumped into the trench.

The pipe shall be inspected for defects. All lumps, blisters and excess coal tar coating shall be removed from the ends of each pipe, and the inside of the bell.

Field-cut pipe shall be beveled to avoid damage to the gasket and facilitate making the joint.

The pipe shall be installed with 8 mil. polyethylene film in tube or sheet form and shall be in accordance with AWWA C105/A21.5-05 suitable for the appropriate diameter of pipe and as detailed on the plans. Cost of this wrap shall be included in the cost of the water main construction.

Reinforced tracer wire shall be installed directly above the water main and secured every 5 feet on center. Tracer wire shall have a copper clad steel conductor, insulated with min 30 mils high density, high molecular weight coating, and shall be rated for direct burial use at 30 volts. Insulation color shall meet the APWA color code standard for identification of buried utilities. Tracer wire shall be Copperhead #12 HS-CCS tracer wire, Trace-Safe Water Blocking tracer wire. Cost of the tracer wire shall be included in the cost of the water main construction.

When connecting joints, all portions of the joining materials and the socket and spigot ends of the joining pipe shall be wiped clean of all foreign materials. The actual assembly of the joint shall be in accordance with the manufacturer's installation instructions. During the construction and until joining operations are complete, the open ends of all pipes shall be at all times protected and sealed with temporary water tight plugs.

The entire section of the pipe shall be pushed forward to seat the spigot end into the bell. After the section of pipe is inserted into the bell (when joining pipe to mechanical joint fittings) the gasket shall then be pressed into place within the bell, being careful to have the gasket evenly located around the entire joint. Restrained joint pipe shall be installed per manufacturer’s requirements.

When installing iron fittings, all fittings which deflect the flow 11-1/4 degrees or greater shall have restrained joints and a thrust block. Thrust blocks shall be poured concrete of the dimensions shown on the drawings and in accordance with the provisions of the Standard Specifications for Water and Sewer Main Construction in Illinois as shown on the plans.

When a stretch of pipe and appurtenances have been completed the Contractor shall furnish proper appliances and facilities for testing and draining the same, without injury to the work or surrounding territory. He shall test by filling the pipe with clean water under a minimum hydrostatic pressure of one hundred fifty (150) pounds per square inch for four (4) hours in accordance with City of Naperville requirements. Water for performing tests shall be supplied by The City of Naperville for filling and flushing the main.

After completion of the pressure test, the Contractor shall measure the leakage under the specified test pressure. The measured leakage shall be in conformance with 41-2.14C of the "Standard Specifications for Water and Sewer Main Construction in Illinois," Seventh Edition. Allowable leakage shall be as shown in the following table:

Table 1. Allowable leakage for pipeline per 1,000 feet (gallons per hour)

Avg. Test Pressure	Pipe Size in Inches											
PSI	2	3	4	6	8	10	12	14	16	18	20	24
150	0.17	0.25	0.33	0.50	0.66	0.83	0.99	1.16	1.32	1.49	1.66	1.99

Water mains shall be subjected to a hydrostatic/leakage test in accordance with Naperville Standard Specifications. Test pressure shall be no less than 150 psi for a period of 4 hours and not vary by more than ± 5 psi during the test. The test gauge shall be approved by the City and shall be glycerin or oil filled, with a range of not more than 200 psi and increments not greater than 5 psi, 4“ minimum dial size.

When pressure and leakage tests are completed and prior to being placed into service, the water main pipe and appurtenances shall be disinfected by a method of chlorination approved by the Engineer. Disinfection of the water main shall conform to Sections 41-2.15 through 41-2.15I of the "Standard Specifications for Water and Sewer Main Construction in Illinois," Seventh Edition.

Any defects, cracks or leakage that may develop or may be discovered, either in the joints or in the body of the castings, shall be promptly repaired by the Contractor at his own expense.

Water main (of the diameters specified) will be measured by the lineal foot in place. Water mains shall be measured along the centerline of the water main from the center of the valve to the center of the valve, fittings, or end of pipe.

Basis of Payment
Payment for water main shall be made at the contract unit price per lineal foot bid for DUCTILE IRON WATER MAIN of the diameter specified. Payment shall be full compensation for excavation, bedding, polyethylene wrap, iron fittings, installation of water main, restraint devices, backfill compaction, connection to existing water main, pressure testing, taps, chlorination, bacteriological sampling/testing and all labor materials, equipment and incidentals as shown on the plans and as specified herein to construct a complete and operational water main.

INSERTING VALVES

Description
The item shall include furnishing and installing an insertion valve with a valve box of the size specified and/or shown on the drawings.

Valve shall be a resilient-wedge type gate valve with a non-rising bronze stem and a 2 inch AWWA operating nut such as EZ Valve as manufactured by Advanced Valve Technologies with material that meets or exceeds the AWWA C509-01 and/or AWWA C515-01 (or latest edition) valve specification. All materials used in the manufacture of water works valves shall conform to the AWWA standards designed for each material listed. All nuts, bolts, washers and other hardware shall be stainless steel, Type 304 or better.

Insert valves shall be furnished for and installed in a horizontal conduit with the valve stem plumb over the centerline of the pipe. A thrust block shall be provided under the valve.

Valve boxes/lids shall be Tyler, two-piece with drop lid, 6850 series (screw type, 5-1/4 inch shafts). Valve boxes and extensions must be cast iron and conform to the requirements of Standard Specifications for Gray Iron Castings, ASTM Designation A-48. The box opening shall be centered over the operation nut and the cast iron cover shall be set flush with the finished surface.

Any sawcutting, pavement removal, excavation and other work required to install the insertion valve shall be considered as included in the cost of to this pay item and will not be paid for separately. All spoils shall be legally disposed of offsite. Disposal will be considered included in the cost of to this pay item and no additional compensation will be allowed.

The outside surface of the existing main and the interior surface of the sleeve shall be thoroughly cleaned and disinfected with a 1% hypochlorite solution.

Adjustable cast iron valve boxes shall be set to position during backfilling operations so they will be in a vertical alignment to the valve operating stem. The lower casting of the unit shall be installed first in a manner as to be cushioned and to not rest directly upon the body of the R/W valve or upon the watermain. The upper casting of the unit shall then be placed in proper alignment into such an elevation that its top will be at final grade. Backfilling around both units shall be placed and compacted with a vibratory method. Valve boxes must be free of debris, centered over the operating nut and easily keyable.

The work and materials shall conform to applicable provisions of the “Standard Specifications for Water and Sewer Main Construction in Illinois” and in accordance to the details shown on the plans.

Basis of Payment
This work will be paid at the contract unit price each for INSERTING VALVES, of the diameter specified, which price shall be full compensation for all work and materials, excavation, removal of spoils, connections to existing pipes, bedding, backfill, leak testing, and any other incidental items required for a completed installation.

WATER VALVES TO BE ADJUSTED

Description. This work shall consist of adjusting existing water main gate valve frames or boxes to the final grade and any interim grade as may be required by construction staging. The work shall include any excavation and backfilling required to properly adjust the gate valve frame or box to the correct grade. The construction requirements and materials shall be in accordance with Section 561 of the Standard Specifications.

Basis of Payment. This work will be paid for at the contract unit price per each for WATER VALVES TO BE ADJUSTED.

FIRE HYDRANTS TO BE REMOVED

Description
This work shall consist of removing existing fire hydrants, auxiliary valves, and auxiliary valve boxes in a reusable condition at locations where the existing water main is to be abandoned. The Contractor shall take care not to damage the existing fire hydrant assemblies when removing and shall notify the Engineer when they are ready for transport by Public Utilities personnel. City personnel shall have the option to salvage parts only with any remaining items to be disposed of by the Contractor. Existing hydrant risers, auxiliary valve boxes and valve stems shall be removed

to at least three (3) feet below existing grade. The fire hydrants shall not be removed until replacement fire hydrants have been installed and are operational. All spoil material resulting from fire hydrant assembly removal, shall be disposed of by the Contractor. All fire hydrants removed in non-paved areas shall have the void backfilled with compacted sand (FA-2).

Basis of Payment
Payment for removing existing fire hydrant assemblies shall be made at the contract unit price per each bid for FIRE HYDRANTS TO BE REMOVED.

COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.12

Add the following to Article 606.01 of the Standard Specifications:
At locations where proposed pavement and sidewalk prevent the use of a standard curb height, variable height curb shall be used. The minimum curb height shall be 3" and the maximum shall be 9".
Add the following to Article 606.15 of the Standard Specifications:

The varying of the curb height as shown in the plans or directed by the Engineer shall be included in the cost of COMBINATION CONCRETE CURB AND GUTTER, of the type specified.

REMOVAL AND DISPOSAL OF REGULATED SUBSTANCES

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 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 NELAP certified analytical laboratory registered with the State of Illinois.

Site #WS-5: WASHINGTON STREET

- Station 134+15 to Station 134+80 from 70 feet LT to 50 feet RT contains non-special waste and is shown on the cross sections. This material meets the criteria of Article

669.05(a)(5) and shall be managed in accordance to Article 669.05. Potential contaminants of concern sampling parameters: VOCs and Metals.

Site #WS-6: WASHINGTON STREET

- Station 133+55 to Station 134+15 from 55 feet LT to 38 feet RT contains non-special waste and is shown on the cross sections. This material meets the criteria of Article 669.05(a)(5) and shall be managed in accordance to Article 669.05. Potential contaminants of concern sampling parameters: VOCs and Metals.

Site #SED-2: WASHINGTON STREET

- Station 134+80 to Station 135+55 from 0 feet to 80 feet RT contains non-special waste and is shown on the cross sections. This material meets the criteria of Article 669.05(a)(5) and shall be managed in accordance to Article 669.05. Potential contaminants of concern sampling parameters: VOCs and Metals.

Site #AA-3: WASHINGTON STREET

- Station 201+93 to Station 203+80 from 24 feet LT to 48 feet RT contains non-special waste and is shown on the cross sections. This material meets the criteria of Article 669.05(a)(5) and shall be managed in accordance to Article 669.05. Potential contaminants of concern sampling parameters: VOCs and Metals.

Site #WS-7 WASHINGTON STREET AND AURORA AVENUE

- All excavation planned at each quadrant of the intersection of Washington Street and Aurora Avenue, Naperville, Illinois. This material meets the criteria of Article 669.05(a)(5) and shall be managed in accordance to Article 669.05. Potential contaminants of concern sampling parameters: VOCs and Metals.

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:

Dry Cleaning, Etc, 22 E. Chicago – RCRA, SRP

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).

DUCT BANK, CONCRETE, TYPE A
DUCT BANK, CONCRETE, TYPE B
DUCT BANK, CONCRETE, TYPE C

Description. This work shall consist of the installation of duct bank at the locations shown in the plans in accordance with plan details, this specification and as directed by the Engineer. The number and size of ducts shall be as shown in the plans. This work shall be in accordance with Article 810 of the Standard Specifications and as modified below.

River Crossing Excavation
Excavation within the river crossing shall include removal of the riverbed material and ROCK EXCAVATION as shown on the details in the plans. Riverbed removal shall be considered

included in the cost of DUCT BANK. The cost of rock excavation shall be paid for as ROCK EXCAVATION.

River Crossing Backfill and Concrete Encasement
The duct bank trench shall be backfilled in accordance with the details included in the plan. The river crossing trench beyond the limits of the duct bank dimensions shown in the plans shall be filled with concrete and shall be paid for as CONCRETE ENCASEMENT. Additional backfill of excavated bedrock beyond the excavation limits of the detail included in the plans shall be considered included in this pay item.

Method of Measurement. This work will be measured for payment in feet installed.

Basis of Payment. This work will be paid for at the contract unit price per foot for DUCT BANK, CONCRETE, of the type noted.

MAST ARM SIGN PANELS

Effective: May 22, 2002
Revised: July 1, 2015
720.01TS

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.

LUMINAIRE, LED, ROADWAY, OUTPUT DESIGNATION H

Description. This item shall consist of furnishing and installing a cobrahead style LED luminaire, fuses, fuse holders, and all required hardware as specified herein at the locations shown on the plans and per Article 821 of the Standard Specifications.

Luminaire: The luminaire shall be model number GC2-96G-MV-NW-2R-GY-700-PCR7-WL, as manufactured by Leotek Electronics USA LLC.

Color Temperature: LED’s shall be 4000K color temperature.

Initial Lumen Output: Initial lumen output shall be 26,700 lumens.

Optics: The luminaire shall provide Type II light distribution per IES classifications.

Finish: The luminaire shall have a natural aluminum finish.

Warranty: The luminaire shall be warranted for 10 years minimum.

Basis of Payment. This work will be paid for at the contract unit price per each for LUMINAIRE, LED, ROADWAY, OUTPUT DESIGNATION H which shall include all labor, materials, and equipment to complete the installation as described herein.

LIGHT POLE, ALUMINUM, 40 FT M.H., 12 FT. MAST ARM

Description. This work shall consist of the furnishing and installation of a light pole as shown on the plans and in accordance with Section 821 of the Standard Specifications except as modified herein. This work shall include all labor, materials and equipment necessary for proper installation.

Materials. Light poles shall be in accordance with City of Naperville Standard Detail 690.06.

Measurement and Payment. This item shall be paid at the contract unit price each for LIGHT POLE, ALUMINUM, 40 FT M.H., 12 FT. MAST ARM.

LIGHT POLE, ALUMINUM, 30 FT M.H., TENON MOUNT

Description. This work shall consist of the furnishing and installation of a light pole as shown on the plans and in accordance with Section 821 of the Standard Specifications except as modified herein. This work shall include all labor, materials and equipment necessary for proper installation.

Materials. Light poles shall be in accordance with City of Naperville Standard Detail 690.10.

Measurement and Payment. This item shall be paid at the contract unit price each for LIGHT POLE, ALUMINUM, 30 FT M.H., TENON MOUNT.

LIGHT POLE, ALUMINUM, 47.5 FT M.H., 12 FT. MAST ARM

Description. This work shall consist of the furnishing and installation of a light pole as shown on the plans and in accordance with Section 821 of the Standard Specifications except as modified herein. This work shall include all labor, materials and equipment necessary for proper installation.

Materials. Light poles shall be in accordance with City of Naperville Standard Detail 690.07.

Measurement and Payment. This item shall be paid at the contract unit price each for LIGHT POLE, ALUMINUM, 47.5 FT M.H., 12 FT. MAST ARM.

TEMPORARY LUMINAIRE, LED, ROADWAY, OUTPUT DESIGNATION H

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 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, 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 33 years' experience manufacturing HID roadway luminaires and shall have a minimum of seven (7) years' experience manufacturing LED roadway luminaires. The manufacturer shall have a minimum of 25,000 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 to1000 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). If the weight of the luminaire is less than 20 lb (9.07 kg), weight shall be added to the mounting arm or a supplemental vibration damper installed as approved by the Engineer.

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 (± 10%) or 347 to 480 volts (± 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 IP66 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 (+/-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

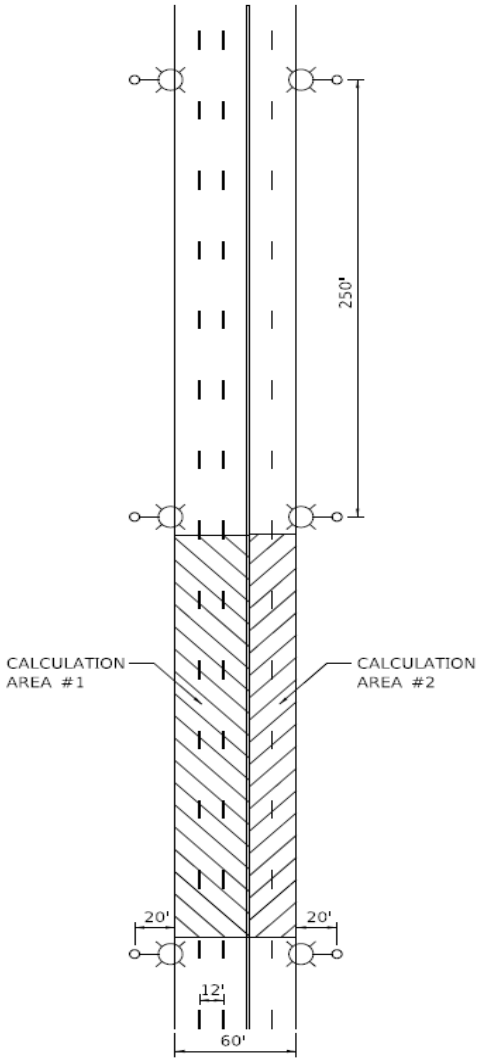
Roadway Data	Pavement Width	60	Ft
	Number of Lanes Left of Median	3	
	Number of Lanes Right of Median	2	
	Lane Width	12	Ft
	Median Width	0	Ft
	IES Surface Classification	R3	
	Q-Zero Value	0.07	
Mounting Data	Mounting Height	50	Ft
	Mast Arm Length	15	Ft
	Pole Set-Back from Edge of Pavement	20	Ft
Luminaire Data	Source	LED	
	Color Temperature	4000	°K
	Lumens	25,200	Min
	Pay Item Lumen Designation	H	
	BUG Rating	B3-U0-G3	
	IES Vertical Distribution	Medium	
	IES Control of Distribution		
	IES Lateral Distribution	Type II	
	Total Light Loss Factor	0.75	
Pole Layout Data	Spacing		Ft
	Configuration	Opposite	
	Luminaire Overhang over E.O.P.	-5	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)	1.35	Cd/m^2
	Average Luminance, L_{AVE} (Min)	0.9	Cd/m^2
	Uniformity Ratio, L_{AVE}/L_{MIN}	3.0	Max
	Uniformity Ratio, L_{MAX}/L_{MIN}	5.0	Max
	Veiling Luminance Ratio, L_V/L_{AVE}	0.3	Max



TEMPORARY LUMINAIRE, LED, ROADWAY, OUTPUT DESIGNATION H
POLE LAYOUT DIAGRAM

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.

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
A	2,200
B	3,150
C	4,400
D	6,300
E	9,450
F	12,500
G	15,500
H	25,200
I	47,250
J	63,300
K	80,000+

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 TEMPORARY LUMINAIRE, LED, ROADWAY, of the output designation specified.

MAINTENANCE OF EXISTING TRAFFIC SIGNAL AND FLASHING BEACON INSTALLATION

Effective: May 22, 2002
Revised: July 1, 2015
850.01TS

General.

1. Full maintenance responsibility shall start as soon as the Contractor begins any physical work on the Contract or any portion thereof. If Contract work is started prior to a traffic signal inspection, maintenance of the traffic signal installation(s) will be transferred to the Contractor without an inspection.

2. The Contractor shall have electricians with IMSA Level II certification on staff to provide signal maintenance. A copy of the certification shall be immediately available upon request of the Engineer.

3. This item shall include maintenance of all traffic signal equipment and other connected and related equipment such as flashing beacons, emergency vehicle pre-emption equipment, master controllers, uninterruptable power supply (UPS and batteries), PTZ cameras, vehicle detection, handholes, lighted signs, telephone service installations, communication cables, conduits to adjacent intersections, and other traffic signal equipment.

4. Regional transit, County and other agencies may also have equipment connected to existing traffic signal or peripheral equipment such as PTZ cameras, switches, transit signal priority (TSP and BRT) servers, radios and other devices that shall be included with traffic signal maintenance at no additional cost to the contract.

5. 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 the local municipality and should be de-activated while on contractor maintenance.

6. The energy charges for the operation of the traffic signal installation shall be paid for by the Contractor.

Maintenance.

1. The Contractor shall check all controllers every two (2) weeks, which will include visually inspecting all timing intervals, relays, detectors, and pre-emption equipment to ensure that they are functioning properly. The Contractor shall check signal system communications and phone lines to assure proper operation. This item includes, as routine maintenance, all portions of emergency vehicle pre-emption equipment. The Contractor shall maintain in stock at all times a sufficient amount of materials and equipment to provide effective temporary and permanent repairs. Prior to the traffic signal maintenance transfer, the contractor shall supply a detailed maintenance schedule that includes dates, locations, names of electricians providing the required checks and inspections along with any other information requested by the Engineer.

2. The Contractor is advised that the existing and/or span wire 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 fifteen (15) minutes, must have prior approval of the Engineer. Approval to shut down the traffic signal installation will only be granted during the period extending from 10:00 a.m. to 3:00 p.m. on weekdays. Shutdowns shall not be allowed during inclement weather or holiday periods.

3. The Contractor shall provide immediate corrective action when any part or parts of the system 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 on flashing operation. The signals shall flash RED for all directions unless a different indication has been specified by the Engineer. The Contractor shall be required to place stop signs (R1-1-36) at each approach of the intersection as a temporary means of regulating traffic. When the signals operate in flash, the Contractor shall furnish and equip all their vehicles assigned to the maintenance of traffic signal installations with a sufficient number of stop signs as specified herein. The Contractor shall maintain a sufficient number of spare stop signs in stock at all times to replace stop signs which may be damaged or stolen.

4. The Contractor shall provide the Engineer with 2 (two) 24 hour telephone numbers for the maintenance of the traffic signal installation and for emergency calls by the Engineer.

5. Traffic signal equipment which is lost 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.

6. The Contractor shall respond to all emergency calls from the Department or others within one (1) 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 and identical equipment. The cost of furnishing and installing the replaced equipment shall be borne by the Contractor at no additional charge 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 State's Electrical Maintenance Contractor perform the maintenance work. The Contractor shall be responsible for all of the State's Electrical Maintenance Contractor's costs and liquidated damages of $1000 per day per occurrence. The State's Electrical Maintenance Contractor shall bill the Contractor for the total cost of the work. The Contractor shall pay this bill within thirty (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 make reviews of the Existing Traffic Signal Installation that has been transferred to the Contractor for Maintenance.

7. 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.

8. Equipment included in this item that is damaged 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 otherwise the traffic signal installation will not be accepted. Cable splices outside the controller cabinet shall not be allowed.

9. Automatic Traffic Enforcement equipment, such as Red Light Enforcement cameras, detectors, and peripheral equipment, damaged or not operating properly from any cause, shall be the responsibility of the municipality or the Automatic Traffic Enforcement Company per Permit agreement.

10. The Contractor shall be responsible to clear snow, ice, dirt, debris or other condition that obstructs visibility of any traffic signal display or access to traffic signal equipment.

11. The Contractor shall maintain the traffic signal in normal operation during short or long term loss of utility or battery back-up power at critical locations designated by the Engineer. Critical locations may include traffic signals interconnected to railroad warning devices, expressway ramps, intersection with an SRA route, critical corridors or other locations identified by the Engineer. Temporary power to the traffic signal must meet applicable NEC and OSHA guidelines and may include portable generators and/or replacement batteries. Temporary power to critical locations shall not be paid for separately but shall be included in the contract.

12. Temporary replacement of damaged or knockdown of a 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.

Basis of Payment.
This work will be paid for at the contract unit price per each for MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION. Each intersection will be paid for separately. Maintenance of a standalone and or not connected flashing beacon shall be paid for at the contract unit price for MAINTENANCE OF EXISITNG FLASHING BEACON INSTALLATION. Each flashing beacon will be paid for separately.

DETECTOR LOOP

Effective: May 22, 2002
Revised: July 1, 2018
886.01TS

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 (847) 705-4424 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 plan.

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 water proof tag, from an approved vendor, secured to each wire with nylon ties.

Resistance to ground shall be a minimum of 100 mega-ohms under any conditions of weather or moisture. Inductance shall be more than 50 and less than 700 microhenries. Quality readings shall be more than 5.

(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 inch (6.3 mm) deep x 4 inches (100 mm) saw cut to mark 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 inch (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:

(d) 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.

(e) 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.

(f) 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 5/8 inch (16 mm) outside diameter (minimum), 3/8 inch (9.5 mm) inside diameter (minimum) 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. 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 insure 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 insure complete moisture

blockage and further protect the wire. The preformed loops shall be constructed to allow a minimum of 6.5 feet 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.

TEMPORARY TRAFFIC SIGNAL INSTALLATION

Effective: May 22, 2002
Revised: January 1, 2017
890.01TS

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. Temporary traffic signal controllers and cabinets interconnected to railroad traffic control devices shall be new. When temporary traffic signals will be operating within a county or local agency Traffic Management System, the equipment must be NTCIP compliant and compatible with the current operating requirements of the Traffic Management System.

General.
Only an approved controller equipment supplier will be allowed to assemble 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.

1. Only controllers supplied by one of the District approved closed loop equipment supplier 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 30 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.

2. Only control equipment, including controller cabinet and peripheral equipment, supplied by one of the District approved closed loop equipment suppliers 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 plans. 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.

(b) Cabinets. All temporary traffic signal cabinets shall have a closed bottom made of aluminum alloy. The bottom shall be sealed along the entire perimeter of the cabinet base to ensure a water, dust and insect-proof seal. The bottom shall provide a minimum of two (2) 4 inch (100 mm) diameter holes to run the electric cables through. The 4 inch (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 806.01TS GROUNDING OF TRAFFIC SIGNAL SYSTEMS special provision.

(d) Traffic Signal Heads. All traffic signal sections shall be 12 inches (300 mm). Pedestrian signal sections shall be 16 inch (406mm) x 18 inch (457mm). Traffic signal sections shall be LED with expandable view, unless otherwise approved by the Engineer. Pedestrian signal heads shall be Light Emitting Diode (LED) Pedestrian Countdown Signal Heads except when a temporary traffic signal is installed at an intersection interconnected with a railroad grade crossing. When a temporary traffic signal is installed at an intersection interconnected with a railroad grade crossing, Light Emitting Diode (LED) Pedestrian Signal Heads shall be furnished. 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 plans. The Contractor may request, in writing, to substitute the fiber optic temporary interconnect indicated in the contract documents 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. 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. When shown in the plans, temporary traffic signal interconnect equipment shall be furnished and installed. The temporary traffic signal interconnect shall maintain interconnect communications throughout the entire signal system for the duration of the project. Any temporary signal within an existing closed loop traffic signal system shall be interconnected to that system using similar brand control equipment at no additional cost to the contract.

3. Temporary wireless interconnect. The radio interconnect system shall be compatible with Eagle 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. Max. 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 to the vendors recommendations.

(f) Emergency Vehicle Pre-Emption. 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. Pedestrian push buttons shall be provided for all pedestrian signal heads/phases as directed by the Engineer. Microwave vehicle sensors or video vehicle detection system shall be approved by IDOT prior to Contractor furnishing and installing. The Contractor shall install, wire, and adjust the alignment of the microwave vehicle sensor or video vehicle detection system in accordance to the manufacturer’s recommendations and requirements. The Contractor shall be responsible for adjusting the alignment of the microwave vehicle sensor or video vehicle detection system for all construction staging changes and for maintaining proper alignment throughout the project. An equipment supplier shall be present and assist the contractor in setting up and maintaining the microwave vehicle sensor or 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) Uninterruptable Power Supply. All temporary traffic signal installations shall have 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 862.01TS UNITERRUPTABLE POWER SUPPLY, SPECIAL Special Provision.

(i) Signs. All existing street name and intersection regulatory signs shall be removed from existing poles and relocated to the temporary signal span wire. 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 intersection regulatory 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 the regulatory 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 reflecting street name signs shall be installed on the temporary traffic signal installation.

(j) 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.

(k) Maintenance. Maintenance shall meet the requirements of the Standard Specifications and 850.01TS MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION Special Provisions. 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 he begins any physical work on the Contract or any portion thereof. In addition, a minimum of seven (7) days prior to assuming maintenance of the existing traffic signal installation(s) under this Contract, the Contractor shall request that the Resident Engineer contact the Bureau of Traffic Operations (847) 705-4424 for an inspection of the installation(s).

(l) 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 plans. 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 feet (5.5m) on temporary wood poles (Class 5 or better) of 45 feet (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. Microwave vehicle sensors or video vehicle detection system may be used in place of detector loops as approved by the Engineer.

(m) 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 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 feet (5m) 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 feet (2.5m) 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 microwave sensors or 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 ºF (-34 ºC) and 120 ºF (48 ºC). 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, microwave vehicle sensors, video vehicle detection system, any maintenance or adjustment to the microwave vehicle sensors/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 intersection will be paid for separately.

EMERGENCY VEHICLE PRIORITY SYSTEM

Effective: May 22, 2002
Revised: July 1, 2015
887.01TS

Revise Section 887 of the Standard Specifications to read:

It shall be the Contractor's responsibility to contact the municipality or fire district to verify the brand of emergency vehicle pre-emption 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 new installations shall be equipped with Confirmation Beacons as shown on the "District One Standard Traffic Signal Design Details." The Confirmation Beacon shall consist of a 6 watt Par 38 LED flood lamp with a 30 degree light spread, or a 7 watt Par 30 LED flood lamp with a 15 degree or greater spread, maximum 7 watt energy consumption at 120V, and a 2,000 hour warranty for each direction of pre-emption. The lamp shall have an adjustable mount with a weatherproof enclosure for cable splicing. All hardware shall be cast aluminum or stainless steel. Holes drilled into signal poles, mast arms, or posts shall require rubber grommets. In order to maintain uniformity between communities, the confirmation beacons shall indicate when the control equipment receives the pre-emption signal. The pre-emption movement shall be signalized by a flashing indication at the rate specified by Section 4L.01 of the "Manual on Uniform Traffic Control Devices," and other applicable sections of future editions. The stopped pre-empted movements shall be signalized by a continuous indication.

All light operated systems shall include security and transit preemption software and 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.

This item shall include any required modifications to an existing traffic signal controller as a result of the addition of the EMERGENCY VEHICLE PRIORITY SYSTEM.

Basis of Payment.
The work shall be paid for at the contract unit price each for furnishing and installing LIGHT DETECTOR and LIGHT DETECTOR AMPLIFIER. Furnishing and installing the confirmation beacon shall be included in the cost of the Light Detector. Any required modifications to the traffic signal controller shall be included in the cost of the LIGHT DETECTOR AMPLIFIER. The preemption detector amplifier shall be paid for on a basis of (1) one each per intersection controller and shall provide operation for all movements required in the pre-emption phase sequence.

MODIFY EXISTING CONTROLLER CABINET

The work shall consist of modifying an existing controller cabinet as follows:

(a) Light Emitting Diode (LED) Signal Heads, Light Emitting Diode (LED) Optically Programmed Signal Heads and Light Emitting Diode (LED) Pedestrian Signal Heads. The contractor shall verify that the existing load switches meet the requirements of Section 1074.03(b)(2) of the Standard Specifications and the recommended load requirements of the light emitting diode (LED) signal heads that are being installed at the existing traffic signal. If any of the existing load switches do not meet these requirements, they shall be replaced, as directed by the Engineer.

(b) Light Emitting Diode (LED), Signal Head, Retrofit. The contractor shall verify that the existing load switches meet the requirements of Section 1074.03(b)(2) of the Standard Specifications and the recommended load requirements of light emitting diode (LED) traffic signal modules, pedestrian signal modules, and pedestrian countdown signal modules as specified in the plans. If any of the existing load switches do not meet these requirements, they shall be replaced, as directed by the Engineer.

(c) This item shall include the upgrade of all non-railroad controller software to the latest version available at the time of the signal TURN-ON.

(d) Wireless Vehicle Detection System. The contractor shall remove the existing wireless vehicle detection equipment from signal poles to be removed as part of this project. The contractor shall also safely store removed equipment for the duration of construction and reinstall on the proposed signal equipment. New communications cable shall be provided meeting the requirements below. This work shall include any reconfiguration or adjustments required for the permanent signal system.

Communications Cable Construction.

The EIA-485 Communications Cable shall consist of at least six (6), 24 AWG twisted pair conductors within a shielded jacket and UV-resistant low density polyethylene jacket and has the following minimum properties:

1. Conductor: Six (6) conductors, 24 AWG, copper conductor;
2. Colors: blue wire, orange wire, orange/white wire, green wire, green/white wire, blue/white wire;

3. Insulation: Conductor insulated with extruded polyethylene with 0.030 in. wall thickness;
4. Shielding: 100% aluminum foil tape conductor coverage;
5. Jacket: Extruded black polyethylene with 0.030

Basis of Payment.
Modifying an existing controller cabinet will be paid for at the contract unit price per each for MODIFY EXISTING CONTROLLER CABINET. This shall include all material and labor required to complete the work as described above, the removal and disposal of all items removed from the controller cabinet, as directed by the Engineer.

PLANTING WOODY PLANTS

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:

- Maple (Acer spp.)
- Buckeye (Aesculus spp.)
- Serviceberry (Amelanchier spp.)
- Birch (Betulus spp.)
- American Hornbeam (Carpinus caroliana)
- Hickory (Carya spp.)
- Hawthorn (Crataegus spp.)
- Walnut (Juglans spp.)
- Tuliptree (Liriodendron spp.)
- Crabapple (Malus spp.)
- Black Tupelo (Nyssa sylvatica)
- American Hophornbeam (Ostraya virginiana)
- Oak (Quercus spp.)
- Sassafras (Sassafras albidum)
- Baldcypress (Taxodium distichum)
- American Linden (Tilia americana)

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 with a 70% shade mesh heavy duty tarp 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 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. Tree locations within each planting area shall be marked with a different color stake/flag and labeled to denote the different tree species. Shrub beds limits must be painted.

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 (7) 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 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 2” allowing the tree or shrub to sit 2” higher than the surrounding soil surface for trees.

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 and vines in a vine bed as shown on the plans or as directed by the Engineer, 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 site of the work 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, the depth of the hole shall be equal to the depth of the root mass minus 2" allowing the tree or shrub to sit 2" higher than the surrounding soil surface for trees. 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 place in the hole, all cords and burlap shall be removed from the trunk. Remove the wire basket from the top three quarters (3/4) 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 two (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 (4) 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 (7) 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.

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 equally spaced 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 last sentence of the first paragraph of Article 253.15 Plant Care and substitute the following:

This may require 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. The Contractor shall provide plant care a minimum of every two weeks, or within 3 days 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 plant care additional watering shall be performed at least every two weeks during the months of May through December. The contractor shall apply a minimum of 35 gallons of water per tree, 25 gallons per large shrub, 15 gallons per small shrub, and 4 gallons per vine. The Engineer may direct the Contractor to adjust the watering rate and frequency depending upon weather conditions.

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 twenty-four 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 included in the cost of the contract and shall be performed within 48 hours following notification by the Engineer.

Delete Article 253.16 Method of Measurement and substitute with the following:

Trees, shrubs, evergreens, vines, and seedlings will be measured as each individual plant.

(a) This work will be measured for initial payment, in place, for plant material found to be in live and healthy condition by June 1.

(b) This work will be measured for final payment, in place, for plant material found to be in live and healthy condition upon final acceptance by the department.

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, EVERGREENS, or VINES, of the species, root type, and plant size specified; and per unit for SEEDLINGS.

Payment will be made according to the following schedule.

(a) Initial Payment. Upon completion of planting, mulch covering, wrapping, and bracing, 75 percent of the pay item(s) will be paid.

(b) Final Payment. After the successful completion of all required replacement plantings, clean-up work and receipt of the "Final Acceptance of Landscape Work" memorandum from the Bureau of Maintenance, or upon execution of a third-party bond, the remaining 25 percent of the pay item(s) will be paid.

PLANTING PERENNIAL PLANTS

Effective: January 1, 2014
Revised: July 31, 2013

Revise Article 254 of the Standard Specifications to read:

Article 254.05 Layout of Planting.
The Contractor shall place the marking flags and outline each area for mass or solid planting. The Engineer will contact the Roadside Development Unit at (847) 705-4171 prior to planting to verify the layout. Allow a minimum of seven (7) working days prior to installation for approval.

Article 254.06 Planting Procedures.
Disposal of sod and debris (rock, stones, concrete, bottles, plastic bags, etc.) shall be removed from the perennial planting bed as specified in Article 202.03.

(b) When planting perennials in bed areas shown on the plans or as directed by the Engineer, the following work shall be performed prior to placement of mulch:

(1) Spade a planting bed edge at approximately a 45 degree angle and to a depth of approximately 3-inches (75 mm) 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.

(2) Pre-emergent Herbicide shall be used in the perennial beds prior to the placement of mulch. See specification for Weed Control, Pre-emergent Herbicide.

(3) Compost Furnish and Place shall be applied to the planting beds to a depth of 2-inch (100 mm) than tilled into the soil to a depth of 6-inches (150 mm) to amend the existing topsoil.

(4) Coarse Sand (FA2) 28 lbs/sq. ft. (140 kg/sq m) shall be placed on the planting beds to a depth of 2-inch (100 mm) then tilled into the soil to a depth of 6-inches (150 mm) to amend the existing topsoil.

254.08 Period of Establishment. Period of Establishment for the various types of perennial plants shall be as follows.

(b) Perennial plants must undergo a 30-day period of establishment. Additional watering shall be performed at least twice a week for four weeks following installation. Water shall be applied at the rate of 2 gallons per square foot. 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.

A spray nozzle that does not damage small plants must be used when watering perennial plants. Water shall be applied at the base of the plant to keep as much water as possible off plant leaves. 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.

During the period of establishment, weeds and grass growth shall be removed from within the mulched perennial beds. This weeding shall be performed twice 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.

At the end of the period of establishment, the Contractor will be permitted to replace any unacceptable plants and shall thoroughly weed all the beds.

254.09 Method of Measurement.

Pre-emergent Herbicide will be measured for payment as specified in Weed Control, Pre-emergent Granular Herbicide.

Compost Furnish and Place will be measured for payment as specified in Art. 211.07.

Coarse Sand (FA2) will be measured for payment as specified in Coarse Sand Placement.

254.10 Basis of Payment. This work will be paid for at the contract unit price per unit for PERENNIAL PLANTS, of the type and size specified.

Selective mowing stakes will be paid for at the contract unit price per each for SELECTIVE MOWING STAKES.

Pre-emergent Herbicide will be paid for as specified in WEED CONTROL, PRE-EMERGENT HERBICIDE.

Compost Furnish and Place will be paid for as specified in Art. 211.08.

Coarse Sand (FA2) will be paid for as specified in COARSE SAND PLACEMENT.

Payment for Shredded Mulch shall be included in contract unit price of the perennial plant pay item.

PERENNIAL PLANT CARE

Description: This work shall consist of hand weeding, replenishing mulch, trimming and other perennial plant care work items for each work cycle as described herein and as directed by the Engineer. The work required for each work cycle shall be scheduled to be complete and acceptable at the time of inspection.

Inspection Date: Perennial plant care will be performed every 30 days or as directed by the Engineer. Perennial plant care will be inspected on the date the work is performed. The work required for each work cycle must be 100 percent complete on the inspection date. Partial inspections will not be made.

Work Cycle Requirements:

- Perennial plant beds must be 100 percent weed-free and clear of litter and debris to be acceptable. Control weeds in landscaped areas by pulling the entire plant and roots. Disturbed areas shall be raked level and mulch adjusted.
- Dead flowers, stems, and leaves must be trimmed and removed.
- Monitor mulch depths to maintain a two-inch (50 mm) depth around perennial plants (no more, no less). Rake mulch any away from perennial crowns. Mulch shall not be in contact with the perennial crowns.
- Finely shredded hardwood bark mulch must be replenished to maintain a two-inch (50 mm) depth around perennial plants, if necessary. Hardwood mulch shall not exceed two (2) inches in its largest dimension, free of foreign matter, sticks, stones and clods. (Mulch must be approved by the Engineer prior to placement).
- Remove litter and other debris. All drain inlets must be kept clean and draining freely. All walls, pavement, curb and gutters, and concrete pads are to be left clean and swept free of all debris.
- Plants must be free of insect infestations and sprayed if necessary.
- Beds must have a neatly spaded edge between the mulched bed and the turf.
- Mulch must be raked out of turf surrounding the mulched bed.
- All debris that results from this operation must be removed from the right-of-way and disposed of in accordance with Article 202.03 at the end of each day.
- Trim dead tips of vines and ground covers.
- In the spring (March/April), cut back ornamental grasses to six (6) inches in height. Cut down any perennial left up over the winter to a height of six (6) inches or less and remove any dead leaves around the crowns of the plants. Rake beds free of accumulated debris, dead leaves, and other material, leaving mulch in place and being careful not to damage emerging bulb foliage and flowers. Rake back any mulch that covers plant crowns.
- Fall clean-up (October 15 – November 15; depending upon weather conditions and condition of plant material), cut back perennials leaving 3 to 4 inches height foliage as soon as foliage has died back or at discretion of the Engineer. Do not cut into

plant crowns. Do not cut back any perennial with winter interest (ornamental grasses, Echinacea/Rudbeckia seed heads).

Method of Measurement: The work will be measured for payment of surface area cared for on the inspection date. The area will be computed in square yards. Measurement for payment of this work will be performed on the inspection date.

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 on the inspection date. Work that is not acceptable on the inspection date will not be measured for payment. Individual perennial plant areas within a perennial plant bed will not be measured for payment if any portion of the perennial plant bed has not been cared for. Each perennial plant care work cycle will be measure separately for payment.

Basis of Payment: This work will be paid for at the contract unit price per square yards for PERENNIAL PLANT CARE.

FAILURE TO COMPLETE PLANT CARE AND ESTABLISHMENT WORK ON TIME

Should the Contractor fail to complete the plant care and/or supplemental watering work within the scheduled time frame as specified in the Special Provision for “Planting Woody Plants”, “Planting Perennial Plants”, “Perennial Plant Care”, and “Supplemental Watering“, or within 36 hours notification from the Engineer, or within such extended times as may have been allowed by the Department, the Contractor shall be liable to the Department in the amount of:

- $50.00 per tree/per day
- $40.00 per large shrub/per day
- $35.00 per small shrub/per day
- $20.00 per vine/per day
- $20.00 per perennial/per day
- $20.00 per sq yd sod/per day

not as penalty but as liquidated damages, for each calendar day or a portion thereof of overrun in the contract time or such extended time as may have been allowed.

In fixing the damages as set out herein, the desire is to establish a mode of calculation for the work since the Department’s actual loss, in the event of delay, cannot be predetermined, would be difficult of ascertainment, and a matter of argument and unprofitable litigation. This said mode is an equitable rule for measurement of the Department’s actual loss and fairly takes into account the loss of the tree(s) if the watering or plant care is delayed. The Department shall not be required to provide any actual loss in order to recover these liquidated damages provided herein, as said damages are very difficult to ascertain. Furthermore, no provision of this clause shall be construed as a penalty, as such is not the intention of the parties.

A calendar day is every day shown on the calendar and starts at 12:00 midnight and ends at the following 12:00 midnight, twenty-four hours later.

PLANTER

Description. This work shall consist of furnishing and installing cast stone planters on Monument Type A. The planters will be installed on Monument Type A specified in the contract plans. The work includes cast stone planters, mortar, and accessories.

Quality Assurance.
Materials and methods of construction shall comply with the standards and association recommendations of the Cast Stone Institute Technical Manual (current addition).
Installation: performed only by experienced workers with satisfactory record of performance on completed projects of comparable size and quality.
Shop drawings for all cast stone planters shall be submitted for approval by the Engineer.
Materials.

Planter:
Supplied by: Longshadow Planters, www.longshadow.com
Type: Glencoe 34 w/ square base 24 LS9224.
Finish/ Color: Dry cast limestone, natural color and texture.
Size: 34” diameter with 24” square base.

Mortar:
Masonry cement: ASTM C91, white non-staining type
Aggregate: ASTM C144, clean masonry sand, 100% passing #16 sieve.
Water: Clean, fresh, and potable.
Water repellent admixture: Ammonium stearate, aluminum tristearate or calcium stearate.

Construction.

Mortar Mixes:
Provide water repellent admixture in all mortar used for stone masonry work. Add to mix in accordance with manufacturer's recommendations. Maximum 2% by weight of portland cement content of mortar.
Setting mortar: 1 part nonstaining masonry cement, 1 part hydrated lime, and 6 parts damp loose sand.
Pointing mortar: same as Setting mortar.
Measure and batch materials either by volume or weight. Use accurate measuring devices to ensure uniformity and coloration of mix. Shovel count measurement of sand is not acceptable.
Mix cementitious materials and aggregate in a clean mechanical mixer for at least 5 minutes. Add water in amount to provide satisfactory workable consistency of mortar.

Planter Fabrication:
Fabricate stone work as indicated or as accepted and detailed on final shop drawings. Provide holes and sinkages cut or drilled for anchors, fasteners, supports, and lifting devices as shown

and as necessary to secure stone work in place. Cut and back-check for proper fit and clearance. Shape beds to fit supports.

Cut accurately to shape and dimensions indicated or accepted final shop drawings.
Dress joints, bed, and vertical, straight at 90 degree angle to face. Provide drips and washes as indicated.
Joint width: Cut to allow 1/2" wide joints.
Thickness: Provide thickness indicated. Saw-cut back surfaces concealed in the finished work.
Jointing: Provide as indicated; when not indicated, in accordance with industry standards and practices.

Installation:
As work progresses, build in items furnished by other trades. Fill in solidly with masonry around built-in items.
Set planters in accordance with drawing details and final shop drawings for planters and other stone finishes for column work. Provide anchors, supports, and other attachments shown, or necessary to secure planters in place. Shim and adjust accessories as required for proper setting of planters. Completely fill holes, slots, and sinkages with mortar during setting.
Erect planters plumb and true with joints uniform in width and accurately aligned.
Set planters in full bed of mortar.

Method of Measurement: The contract unit price shall be measured on a per each basis, including all labor, equipment and materials necessary to fabricate and install the ornamental planters.

Basis of Payment**:** This item shall be paid for at the contract unit price per each for PLANTER, which price shall be payment in full for performing the work as specified herein and as determined by the Engineer.

ABANDON AND FILL EXISTING SANITARY MANHOLE

Description
This work shall consist of filling manholes to be abandoned in accordance with Section 605 of the IDOT Standard Specifications and as specified herein.

Manholes to be abandoned shall be removed to at least three (3) feet below existing grade. All materials resulting from the manhole removal, including frame and lid, manhole (precast concrete material or masonry brick) and spoil material shall be disposed of by the Contractor. Manholes filled in paved or sidewalk areas shall be backfilled with compacted aggregate materials (CA-6). Manholes filled in non-paved areas shall be backfilled with compacted sand (FA-2).

Basis of Payment
Payment shall be made at the contract unit price per each bid for ABANDON AND FILL EXISTING SANITARY MANHOLE which shall be full compensation for all material, equipment, and labor required to complete this work. Restoration in the form of pavement patching, sidewalk replacement, driveway replacement, seeding, or sodding will be paid for under a separate item.

WASHOUT BASIN

Description
This work consists of installation, maintenance and subsequent removal and disposal of a concrete washout basin and shall be done in accordance with Sections 280 of the Standard Specifications and as shown on the plans. The washout basin shall be removed after concrete items have been installed. A concrete washout basin shall be supplied as necessary to accommodate concrete delivery operations. No more than one (1) washout basin will be permitted without approval from the Engineer. The washout basin location(s) must be approved by the Engineer prior to installation.

Method of Measurement
This work will be measured for payment as a lump sum.

Basis of Payment
This work will be paid for at the contract lump sum price for WASHOUT BASIN.

TEMPORARY STORM SEWER PLUGS

Description. This work consists of plugging proposed storm sewer at locations specified on the Plans or as specified by the Engineer, as described below, for future drainage connections.

Materials. Plug shall be Class SI concrete conforming to applicable portions of Section 503 of the Standard Specifications.

Construction Requirements. The ends of the pipe shall be closed by a 6 inch thick wall of concrete. Plug shall be watertight with no voids.

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

Basis of Payment. This work shall be paid for at the contract unit price per each for TEMPORARY STORM SEWER PLUGS.

REMOVE EXISTING WATER VALVE

Description
This work shall consist of removing existing valve boxes at locations where the existing water main is to be abandoned.

Existing valve boxes shall be removed to at least three (3) feet below existing grade. Valve boxes removed and filled in paved or sidewalk areas shall be backfilled with compacted aggregate materials (CA-6). Valve boxes removed and filled in non-paved areas shall be backfilled with compacted sand (FA-2).

Basis of Payment

Payment shall be made at the contract unit price per each bid for REMOVE EXISTING WATER VALVE which shall be full compensation for all material, equipment, and labor required to complete this work, including restoration in the form of pavement patching, sidewalk replacement, driveway replacement, seeding, or sodding.

PROPOSED MANHOLE/CATCH BASIN CONNECTION OVER EXISTING STORM SEWER

Description: This work shall consist of installing a manhole/catch basin over an existing sewer as directed in Sections 502 and 550 of the Standard Specifications.

Construction: The Contractor shall carefully remove the existing storm sewer which falls within the structure. After the manhole/catch basin is installed, the manhole/catch basin shall be mortared with a non-shrink concrete grout.

Basis of Payment: The work shall be paid for at the contract unit price each for PROPOSED MANHOLE/CATCH BASIN CONNECTION OVER EXISTING STORM SEWER.

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.

SEGMENTAL CONCRETE BLOCK WALL, SPECIAL

Description. This work shall consist of furnishing, transporting, and placing segmental concrete block wall as specified herein, as shown on the plans, and as directed by the Engineer.

Submittals.

Product Data: For each type of product.
Samples: For each color and texture of concrete unit specified.

Materials.

Basis of Design: Maximum height of segmental retaining wall is approximately four feet. Evaluate conditions on-site with Engineer to determine limits of soil reinforcement if required.

Segmental Retaining Wall Units: Product: Pisa XL Concrete Retaining Wall Units, 16”x6”x12” with 12”x3”x12” coping units, Manufacturer: Unilock, www.unilock.com, Color: Nevada.

Cap Adhesive: Product supplied or recommended by segmental retaining wall unit manufacturer for adhering cap units to units below.

Leveling Base: As indicated on plans.

Drainage Fill: As indicated on plans.

Soil Fill: As indicated on plans.

Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

Drainage Geotextile: Nonwoven needle-punched geotextile, manufactured for subsurface drainage applications, made from polyolefins or polyesters; with elongation greater than 50 percent. Apparent Opening Size: No. 70 to 100 sieve, maximum; ASTM D 4751. Minimum Grab Tensile Strength: 110 lb; ASTM D 4632.

Subdrainage Pipe and Filter Fabric: As indicated on plans.

Soil Reinforcement (if required): Product specifically manufactured for use as soil reinforcement and as follows: Product Type: Molded geogrid made from high-density polyethylene or Woven geotextile made from polyamides, polyesters, or polyolefins as recommended by retaining wall manufacturer.

Construction.

General: Place units according to NCMA's "Segmental Retaining Wall Installation Guide" and segmental retaining wall unit manufacturer's written instructions. Lay units in bond pattern indicated. Form corners and ends by using special units.

Leveling Base: Place and compact base material to thickness indicated and with not less than 95 percent maximum dry unit weight according to ASTM D 698.
First Course: Place first course of segmental retaining wall units for full length of wall. Place units in firm contact with each other, properly aligned and level. Tamp units into leveling base as necessary to bring tops of units into a level plane.

Subsequent Courses: Remove excess fill and debris from tops of units in course below. Place units in firm contact, properly aligned, and directly on course below.

Cap Units: Place cap units and secure with cap adhesive.

Fill Placement: Comply with NCMA's "Segmental Retaining Wall Installation Guide," and with segmental retaining wall unit manufacturer's written instructions. Fill voids between and within units with drainage fill. Place fill as each course of units is laid. Place, spread, and compact drainage fill and soil fill in uniform lifts for full width and length of embankment as wall is laid. Place and compact fills without disturbing alignment of units. Where both sides of wall are indicated to be filled, place fills on both sides at same time. Begin at wall, and place and spread fills toward embankment. Use only hand-operated compaction equipment within 48 inches of wall, or one-half of height above bottom of wall, whichever is greater. Compact reinforced-soil fill to not less than 95 percent maximum dry unit weight according to ASTM D 698.

In areas where only hand-operated compaction equipment is allowed, compact fills to not less than 90 percent maximum dry unit weight according to ASTM D 698. Place a layer of drainage fill at least 12 inches wide behind wall to within 12 inches of finished grade. Place a layer of drainage geotextile between drainage fill and soil fill. Wrap subdrainage pipe with filter fabric and place in drainage fill as indicated, sloped not less than 0.5 percent to drain. Place impervious fill over top edge of drainage fill layer. Place soil reinforcement in horizontal joints of retaining wall where indicated and according to soil-reinforcement manufacturer's written instructions. Embed reinforcement a minimum of 8 inches into retaining wall and stretch tight over compacted backfill. Anchor soil reinforcement before placing fill. Place additional soil reinforcement at corners and curved walls to provide continuous reinforcement. Place geosynthetics with seams, if any, oriented perpendicular to segmental retaining walls. Do not dump fill material directly from trucks onto geosynthetics. Place at least 6 inches of fill over reinforcement before compacting with tracked vehicles or 4 inches before compacting with rubber-tired vehicles. Do not turn vehicles on fill until first layer of fill is compacted and second layer is placed over each soil-reinforcement layer.

Method of Measurement. The contract unit price for Segmental Concrete Block Wall, Special shall be measured per square foot in place, including buried courses, including all materials, labor, equipment, and base material required to complete this work.

Excavation, granular backfill, filter fabric, 4” Perforated PVC Pipe, and Compacted Granular Base will not be measured for payment and shall be included in the cost of this item.

Geogrid soil reinforcement, if required, will not be measured for payment and shall be included in the cost of this item.

Basis of Payment. This work shall be paid for at the contract unit price per square foot for SEGMENTAL CONCRETE BLOCK WALL, SPECIAL, including all materials, labor and equipment, including base material, and no additional compensation will be allowed.

SOIL CONDITIONER, 3”

Description. This work shall consist of preparation of the planting areas to receive soil amendments, including placement and incorporation of an approved soil conditioner into the landscape planting beds.

Materials. The soil conditioner shall consist of ground southern yellow pine bark, composted rice hulls, organic compost, approved nutrient additives and supplements. The Contractor shall submit a 5 pound bag sample to the Engineer for approval prior to the delivery and installation of this material.

Construction. The soil conditioner installation shall only begin after all removals, including vegetation removals, are completed. Clean planting areas of all trash and debris before placement of the approved soil conditioner.

Remove and legally dispose of all removals and debris offsite in accordance with Article 202.03. In existing planting areas, remove existing vegetation and prepare soil surface by gently loosening the top 6 inches of the existing topsoil.

Apply a 3 inch deep layer of soil conditioner within the planting areas. The Engineer will verify that the proper soil conditioner depth has been applied. After verification of proper depth, the Contractor shall completely incorporate the soil conditioner into the loosened Topsoil, Furnish and Place, Special by tilling.

Rake smooth and finish grade all planted areas. This work shall be considered included in the cost of SOIL CONDITIONER, 3". Grading shall be to a tolerance of +/- 0.10 foot of the design grades. Any grade disturbed by any other operations shall be restored to the finish grade and raked smooth at no additional cost.

All debris litter, tire tracks, and unintended materials shall be removed, swept, or washed off of all landscape, adjacent walls and surfaces, curbs, gutters, and pavement on a daily basis, to the approval and directive of the engineer.

Method of Measurement. This work shall be measured on a square foot basis and shall include importing and placing soil conditioner to a depth of 3 inches in all planting bed areas, including all materials, labor, or equipment required to complete this work.

Basis of Payment. This work will be paid for at the contract unit price per square yard for SOIL CONDITIONER, 3", which price shall be payment in full for performing the work as specified herein and as determined by the Engineer.

ABANDON AND FILL EXISTING SANITARY SEWER

Description
The existing sanitary sewer shall be abandoned and filled. Fill options include CLSM, cement grout or engineered fill Elastizell EF, or equal. Cement grout shall be a pumpable mixture of fine aggregate, cement meeting the requirements of ASTM C-150 and water to meet the minimum strength requirement. The minimum compressive strength of the installed fill shall be 40 psi. The Contractor shall be responsible for furnishing and installing a fill material to completely fill the pipe. The Contractor shall submit proposed fill material and installation method for review by the Engineer. The review shall relate to applicability of the material and method and shall not relieve the Contractor of responsibility to furnish applicable material and installation methods to completely fill the pipe.

The pipe shall be drained prior to installation of the fill. The pipe fill shall be installed from the low end of the pipeline and pumped into the pipe to completely fill the void to the upstream manhole or vent pipe. An open riser shall be installed on the high end of the pipeline fill section above the top of the pipe to determine that pipeline is being completely filled. The filling of each pipeline section shall be in one continuous operation. The pipe may be filled as one complete section or individual sections. All costs to sectionalize the pipeline, if filling operation cannot be performed in one operation, shall be included in the cost and will not be paid separately; this includes but is not limited to additional excavation, granular trench backfill, curb and gutter removal and replacement, pavement removal and replacement, etc.

Manholes to be abandoned in place shall be done in accordance with the Special Provision for ABANDON AND FILL EXISTING SANITARY MANHOLE.

Locations
Locations for this work on this project are summarized as follows:

LOCATION	DIAMETER	LENGTH	QUANTITY
West Branch DuPage River	12”	118’	1 EACH
Washington Street Crossing, North of Bridge	10”	79’	1 EACH
Southwest Corner Washington Street / Chicago Avenue	15”	65’	1 EACH
Washington Street Crossing at Chicago Avenue	12”	53’	1 EACH
Washington Street, North of Chicago Avenue	12”	110’	1 EACH
Chicago Avenue, West of Washington Street	10”	190’	1 EACH
Chicago Avenue, West End	10”	52’	1 EACH

Basis of Payment
Payment shall be made at the contract unit price per each bid for ABANDON AND FILL EXISTING SANITARY SEWER which shall be full compensation for all material, equipment, and labor required to complete this work, including restoration in the form of pavement patching, sidewalk replacement, driveway replacement, seeding, or sodding.

BRICK SIDEWALK REMOVAL

This work shall consist of the complete removal of existing brick pavers and subbase material at the locations shown in the plans and as directed by the Engineer.

Description: Removal of the existing brick pavers and subbase material shall be performed in accordance with the applicable portions of Section 440 of the Standard Specifications. The existing subgrade shall be rolled or tamped to the in-kind line and grade. If additional material is

required to establish the in-kind grade, the material used shall meet the requirements for aggregate base course per Article 1004.04 of the Standard Specifications.

Removal shall be done so existing bricks may be reused. Replacement of bricks shall be done to match existing pattern and style. The Contractor shall be responsible for any damage to the bricks during removal and shall replace them in the same size, color, and style.

Basis of Payment: This work shall be measured and paid for at the contract unit price per square foot for BRICK SIDEWALK REMOVAL.

DECORATIVE RAILING (DECK MOUNTED)
DECORATIVE RAILING (PARAPET MOUNTED)
PARAPET RAILING, SPECIAL
PEDESTRIAN RAILING

Description. This work shall consist of fabricating, furnishing, transporting, painting, and installing galvanized decorative steel railings as specified herein, as shown on the plans, and as directed by the Engineer. All work shall be performed in accordance with applicable articles of Section 509 of the Standard Specifications. Work shall include preparation of shop drawings, fabrication, placement, all anchoring hardware, mortar, caulk, painting and cleanup necessary for construction of the railings.

Prior to fabrication, prepare and submit shop drawings for all railings based on field measurements for approval according to Section 509.04 of the Standard Specifications. Fabrication, inspection, and erection of steel railings shall be according to Section 505 of the Standard Specifications.

Materials. Materials shall be galvanized steel in accordance with Article 509.02 of the Standard Specifications. The railing and posts shall be finished according to the details as described in the plans and as specified herein.

Following fabrication, clean and apply finish as follows:

Primer: PPG Pitt-Guard Polyamide-Epoxy primer 95-245/95-249.

Paint: PPG Pitt-Thane Acrylic Aliphatic Urethane paint 95-8001/95-819. Finish color to be Black.

Surface Preparation: Prior to abrasive cleaning, solvent clean in accordance with SSPC-SP-1 to remove all grease and oil. Once cleaning is completed, remove loose rust and mill scale and spatter, slag, or flux deposits in accordance with SSPC-SP 3, "Power Tool Cleaning." Surface to be coated must be dimensionally stable, dry, clean, and free of oil, grease, release agents, curing compounds, and other foreign materials prior to priming and painting.

Priming: Immediately after surface preparation, apply primer according to manufacturer's written instructions with a spray method as recommended by SSPC to provide a dry film thickness of not less than 5-7 mils. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.

Painting: Apply paint according to manufacturer's written instructions with a spray method as recommended by SSPC to provide a dry film thickness of not less than 2-3 mils. Use painting methods that result in full coverage of joints, corners, edges, and exposed surfaces.

Construction. Set railings accurately in location, alignment, and elevation as shown on the plans. Set posts plumb within a tolerance of 1/16 inch in 3 feet. Align rails so parallel with bridge parapet wall. Pickets to align with posts and be plumb within a tolerance of 1/16 in 3 feet.

Anchor posts to concrete mechanically with fasteners appropriately sized to secure in place.

Method of Measurement: The contract unit price for Decorative Railing (Deck Mounted), Decorative Railing (Parapet Mounted), Parapet Railing, Special, and Pedestrian Railing shall be measured for payment in feet of such rail in place. The length measured will be the overall length along the top longitudinal railing member through all posts and gaps.

Basis of Payment. This work shall be paid for at the contract unit price per foot for DECORATIVE RAILING (DECK MOUNTED), DECORATIVE RAILING (PARAPET MOUNTED), PARAPET RAILING, SPECIAL, and PEDESTRIAN RAILING which price shall be payment in full for all labor, materials, tools, equipment and appurtenances to complete the work specified herein, as indicated in the Plans, and as directed by the Engineer.

REMOVAL OF CITY STREETSCAPE ITEMS

Description: This work shall consist of the complete removal and disposal of bollards, railing, and attached appurtenances as shown in the plans and directed by the Engineer.

Method of Measurement: This work will be measured for payment as each bollard removed and for payment per foot for steel railing removal.

Basis of Payment: This work will be paid for at the contract unit price per each for BOLLARD REMOVAL and REMOVAL OF EXISTING WOOD BOLLARDS, and per foot for STEEL RAILING REMOVAL

REMOVE AND REINSTALL BRICK PAVER
BRICK PAVER SIDEWALK
MODULAR CONCRETE PAVERS (SPECIAL)

Description. Brick pavers and all related items shall be furnished and installed as shown on the plans per manufacturer’s recommendations, and in accordance with the City of Naperville’s Downtown Naperville Streetscape Standards and Riverwalk Standards.

The Contractor shall provide all equipment and materials and do all work necessary to construct the unit paving as indicated on the Drawings and as specified. Drawings and general provisions of Contract, and all other sections of these Special Provisions, apply to this Section. Except as

modified herein, the work shall be in accordance with the applicable portions of the Standard Specifications.

The Contractor shall provide evidence that his firm or other entity propose for the unit paving work has specific experience meeting the following criteria:

1. Experience installing unit pavers using sand setting beds.

2. Installed (within past three years) a minimum of 100,000 square feet per year for the past three years of unit paving using sand setting beds.

3. The same experienced supervisory personnel will be made available for this project.

The Contractor shall also submit a list of comparable projects setting forth description, square footage, location and knowledgeable references with addresses and phone numbers.

The Contractor shall submit to the Engineer a minimum of 16 square feet of each type of unit paver for approval. The Submittal shall indicate the full range of unit pavers in the specified colors.

The Contractor shall submit manufacturer's technical specifications and data for concrete paver units indicating conformance with specified requirements.

Materials.

Unit Pavers (Concrete)
Contractor shall remove and salvage existing Riverwalk pavers prior to construction, including memorial pavers, for reinstallation following the bridge construction.

Additional Riverwalk pavers that are needed to supplement salvaged existing Riverwalk pavers shall be provided by the City.

Unit pavers shall be of the color, size and shape specified in the City of Naperville's Downtown Naperville Streetscape Standards and Riverwalk Standards.

Red Blend Concrete Pavers
Manufacturer/
Supplier: Unilock www.unilock.com
Product: Il Campo
Size: 7.75" x 4" x 2.25"
Color: Heritage Brown

Tan Concrete Pavers
Manufacturer/
Supplier: Unilock www.unilock.com
Product: Holland Premier
Size: 7.75" x 4" x 2.25"
Color: Sandstone

Samples of pavers to be used shall be provided for approval to the City of Naperville prior to ordering.

All pavers shall have a minimum compressive strength of 8,000 PSI and an absorption rate of less than 5% when tested, in accordance with ASTM C140 and C936, and after 50 cycles of freeze-thaw or 3-day application of rock salt (wet) there shall be no weight loss or visual signs of deterioration. The pavers shall have the following major components:

1. Cement: ASTM C-150 Portland Cement, Type 1

2. Aggregates: ASTM C33 (washed, graded sand and natural aggregates, no expanded shale or lightweight aggregates)

3. Additives: Calcium stearates should be added to mix to prevent efflorescence of pavers.

4. Coloring agents: Natural iron oxide pigments.

There shall be no variation in the depth of each paver and pavers shall have a chamfered edge on all top-side edges. Tactile pavers shall be as shown on drawings.

Sand Setting Bed
Sand for setting bed shall meet the requirements of Section 1003 of the Standard Specifications for FA-6. Masons sand shall not be used.

Base Course Material
The base course granular material shall meet the requirements of Section 1004 of the Standard Specifications of CA 6 and shall be constructed to a compacted thickness as described in the plans. Crushed Concrete shall not be used.

Paver Joint Material
The paver joint material shall be dry sand conforming to ASTM C-144 with all particles passing the No. 16 sieve.

Sand setting beds are used in the installation of different types of pavers used in this contract. All pavers shall be installed per the respective manufacturer's recommendations. No paver setting work shall be performed when the underlayment has free moisture, ice, or snow, or when the underlayment is frozen.

The concrete underlayment shall be sound, clean, and free from debris and materials or substances which will hinder the bond of the setting bed. The top surface of concrete underlayment slab shall not vary more than one half (1/2) inch of its proposed elevation. Concrete shall have cured at least three (3) days.

Unit Pavers
The Contractor shall make every effort to reduce dust during paver installation and cutting operations. The Contractor is encouraged to shop cut standard shapes required in the installation

of the paver system such as standard bevel cuts, angles and other frequently used pieces. If pavers are wet cut, the Contractor shall clean daily adjacent horizontal and vertical surfaces of all slurry, debris and over spray created by wet cutting operations. If pavers are dry cut, an effective dust collection vacuum system must be employed to collect dust at the saw. The Contractor shall maintain such system to optimize its performance by changing or emptying filter bags, or other required activities.

Cut pavers shall be placed in areas shown on the details in the plans. "L" shaped pavers shall be avoided where possible. Pavers shall be cut radially when joints between pavers on curves exceed 1/8 inch. Radial cut pavers shall be created by trimming both sides of paver.

Base Course

Sub-base granular material base course shall be prepared to compacted depth as indicated on the plans and compacted to 95% at optimum moisture ASTM D698 and D1557 for vehicular areas.

Sand Setting Bed

Sand shall be spread over granular base as a setting bed for pavers. Sand shall be spread 1½ in. thick, and leveled to required slope and grade. The minimum thickness of sand shall be 1" after leveling. The bed shall not be compacted until pavers are installed.

Surface tolerance shall be within 1/4 in. of the required grade as measured with a 10 ft. straightedge in both the transverse and longitudinal directions.

Setting bed shall be protected from damage prior to setting pavers. Unit pavers shall be set on sand setting bed. Setting shall be done by competent workmen under adequate supervision, and in accordance with manufacturer's recommendations. Pavers with chips, cracks, or other structural or aesthetic defects or those rejected by the Owner’s Representative shall not be used. Pavers shall be set true to the required lines and grades in the pattern detailed on the Plans. Pavers shall be tightly butted. Joints between pavers shall be uniform and shall be 1/8 inch in width. There shall be positive surface drainage with no bird baths or raised edges (either pavers or materials adjacent to pavers) that could allow someone to trip. The tolerance for such edges shall be 0" - 1/8" maximum in range.

After a sufficient area of pavers has been installed, the pavers shall be compacted by running a mechanical vibratory compactor over the paved surface until the pavers are uniformly leveled, true to grade, and totally immobilized.

Where required, pavers shall be accurately cut with a masonry or concrete saw. Cut edges shall be plumb and straight. Scoring and breaking shall not be acceptable.

Joints between pavers shall be filled by sweeping sharp sand into the joints. When joints are filled, paver surfaces shall be swept clean of sand.

Paver edgings shall be installed per manufacturer's recommendations.

After completion of the unit pavers, paver installation areas shall be thoroughly swept clean and surface shall be left unsoiled. Where required by the Owner's Representative, surface shall be cleaned with water or an approved cleaner.

Method of Measurement. Riverwalk pavers that are salvaged and reinstalled shall be measured per square foot in place following re-installation.

New Riverwalk pavers that may be required to supplement salvaged Riverwalk pavers shall be provided by the City, and pay item shall include installation only measured per square foot in place.

Streetscape pavers shall be measured per square foot in place.

Basis of Payment. Riverwalk pavers shall be paid for at the contract unit price per square foot for REMOVE AND REINSTALL BRICK PAVER.

New Riverwalk pavers that may be required to supplement salvaged pavers shall be provided by the City and installation shall be paid for at the contract unit price per square foot for BRICK PAVER SIDEWALK.

New Streetscape pavers shall be paid for at the contract unit price per square foot for MODULAR CONCRETE PAVERS (SPECIAL).

RELOCATION OF CITY STREETSCAPE ITEMS

Description: Benches and trash receptacles shall be removed, stored, and reinstalled as directed by the Engineer. Upon completion of the project the benches and trash receptables shall be reinstalled in the same location as prior to construction. The Contractor shall follow the installation methods approved by the bench and trash receptacle manufactures, any additional hardware required to properly install the bench or trash receptacle shall be provided by the Contractor. If any bench or trash receptacle is damaged or lost due to the Contractors operations or storage it shall be replaced in kind by the Contractor at no additional cost. This work shall be included in the cost of REMOVE AND REINSTALL BRICK PAVER.

CONSTRUCTION VIBRATION MONITORING

Description. This work consists of monitoring buildings, structures, tunnels and other locations susceptible to movement. Additional monitoring of facilities may be required and will be determined by the Engineer during the work. Additional monitoring, as determined by the Engineer, is included in the cost of this item.

The Contractor shall monitor adjacent buildings for both vibration and displacement. The Contractor shall designate a minimum of two monitoring point locations for the structures located at the following address:

- 8 W. Chicago Avenue (Lantern)

The monitoring point locations shall be spaced as evenly as possible along the building edge at

the interface between the areas of construction and the building properties. The monitoring points for vibration and displacement do not have to be at the same location. The Contractor shall coordinate with the Engineer and building owners to ensure the proposed monitoring locations are acceptable to the building and accessible to both the Contractor and the Engineer. Proposed locations of building vibration and displacement monitoring points are to be submitted to the Engineer for approval prior to construction.

Vibration Monitoring:
The Contractor shall employ the services of a seismic monitoring consultant as approved by the Engineer. Monitoring point locations and frequency of data collection shall be as determined by the Contractor's Consultant and are subject to the approval of the Engineer. All vibration monitoring devices (seismographs) shall be attached to the floor of the buildings they are monitoring. The limit of acceptable vibration (Limiting Value) at structure shall be 0.5 in/s (inches per second) peak particle velocity. The Contractor's consultant may propose a Threshold Value of vibration for Engineer's review. When the Threshold Value is reached, the Contractor must stop the work and meets with the Engineer to determine the best course of action to reduce the vibrations (or minimize further displacement). Once the Limiting Value is reached, the work is stopped and a more formal response plan is submitted for approval before work can proceed. All seismographs on the project shall be programmed to actuate an alarm when the Threshold Value is exceeded. The alarm notification protocol shall consist of immediate dialing of mobile telephone numbers of the Engineer and the Contractor.

If the Limiting Value is exceeded, all vibration inducing work within 100 feet of the existing building shall be stopped. Work may resume at the direction of the Engineer with the Contractor continuing to closely monitor vibration in the area of the alarm. If the work is stopped because the Limiting Value is exceeded there will be no additional compensation nor any additional time extensions granted. Any change in construction methods to avoid exceeding Limiting Value will not be grounds for additional compensation.

Displacement Monitoring:
The Contractor shall provide the exact horizontal and vertical location of the displacement monitoring points to the Engineer prior to the commencement of any construction activities. The data shall be presented in a tabular format and shall include horizontal positions (stations and offsets or Northing and Easting) as well as vertical elevation (NAVD88 Datum) to a minimum of one hundredth of a foot (0.01').

Monitoring Frequency:
During the beginning phase of each stage of demolition and construction, displacement monitoring shall be performed at the beginning and end of each work day at a minimum. These surveying intervals are the minimum required, and more frequent monitoring may be required by the Engineer as field conditions warrant. If after a period of time resulting in movements that are small in magnitude, monitoring frequency can be reduced to a frequency as established by the Engineer. If resulting movements become random in nature and/or large in magnitude, the frequency shall be increased as directed by the Engineer. The frequency of readings will be dictated by the phase of current construction but must be sufficient to detect serious movements so that corrective measures can be initiated immediately.

Monitoring readings for displacement shall be dated, recorded, and reported to the Engineer the

same day the readings are taken.

Vibration monitoring shall be a continuous and uninterrupted process. During demolition within 50 feet of a vibration monitoring point location, the Contractor shall report the results of the largest amplitude of vibration to the Engineer on the same day. At all other times the vibration report shall be submitted weekly.

Construction Requirements. Before the start of construction, the Contractor will complete a preconstruction inspection of the following addresses/locations:

- 8 W. Chicago Avenue (Lantern)

Before the start of construction, the Contractor will complete a preconstruction inspection of the existing buildings listed above. Readily visible conditions and distress such as unusual cracks in concrete or masonry, obvious signs of leakage, settlement, etc. will be photographically recorded and documented. The Contractor will also make a DVD survey to provide a more complete general record of conditions in those areas. The interior survey shall include the first floor and basement (if existing) within 30 feet of the exterior wall closest to the project site. The exterior survey will include the exterior wall closest to the project site and the two adjacent walls. The survey will be performed from grade without the use of magnification devices. At the conclusion of the pre-construction field work, a report shall be prepared by the Contractor presenting the observed existing conditions and shall include written, videotaped and photographic documentation. This record shall then be used by the Contractor as a basis for comparison to distresses that may occur after the survey. The locations of the displacement monitoring points shall be included in the Report.

The Contractor will use the preconstruction report to aid in the selection of the displacement monitoring points. The Contractor must devise means and methods of construction that will not exceed the specified vibration limits. The Contractor is advised that particularly careful demolition requirements will be required at the edges of the excavation where the property line is immediately adjacent to the area of construction.

Corrective Measures. If at any time resulting movements are serious in nature or cause damage to facilities or property, the Contractor shall stop work immediately and the necessary corrective measures shall be initiated as directed by the Engineer. Damage as a result of the work activity of the Contractor will be corrected by the Contractor as determined by the Engineer. No additional compensation will be due the Contractor for repairing these facilities. The Contractor will not be entitled to any claim of delay for stopping of working to make correct measures.

Submittals. The Contractor must submit a Vibration and Displacement Control Plan to the Engineer for Approval. The Plan must be approved prior to the commencement of work. The plan must include, but is not limited to the following:

- Locations of all monitoring points (Vibration and displacement).
- Procedure and outline for how the data will be provided to the Engineer.

- Type of seismograph to be used (Submit to Engineer for Approval).
- List of pneumatic equipment to be used during demolition operations.
- Contact information for the Seismic Monitoring consultant.
- Timetable that outlines the duration that each monitoring point will be maintained and checked.
- A “Response Plan” to detail how the Contractor will address any concerns with vibration or displacement.

Additional Submittals include:

- Daily reports of all displacement monitoring.
- Weekly reports of all vibration monitoring.

Method of Measurement. The work under this item as described herein will not be measured separately. It will be paid for as lump sum.

Basis of Payment. This work will be paid at the contract unit price per lump sum for CONSTRUCTION VIBRATION MONITORING which payment shall be full compensation for the work described herein and as directed by the Engineer.

TEMPORARY SOIL RETENTION SYSTEM (SPECIAL)

Description. This item shall consist of furnishing all labor, equipment, and materials necessary for the installation of Temporary Soil Retention System at locations shown in the plans. It will remain in place following the end of the Contract and must be designed as a permanent structure to be removed in a future project. This work shall be done in accordance with Article 522.07 of the Standard Specifications, as described herein, as detailed in the plans and as directed by the Engineer.

The design calculations and shop drawings for the temporary soil retention system proposed by the Contractor shall be submitted to the Engineer for review and approval according to Article 522.05. This approval will not relieve the Contractor of responsibility for the safety of the excavation and structural adequacy of adjacent properties.

The Contractor shall submit details and computations, prepared, and sealed by an Illinois Licensed Structural Engineer, to the Engineer for review and approval prior to performing any work or ordering material. The Contractor shall design the soil retention system such that at any location the maximum total lateral deflection at the top of the soil retention system shall not exceed 1.00 inches and the maximum anticipated ground movement at the adjacent properties shall not exceed 0.25 inches. The Engineer’s approval will not relieve the Contractor of responsibility for the structural adequacy of adjacent properties and safety.

The Contractor shall verify locations of all underground utilities (and ancillary/shoring structures) in the vicinity of the proposed excavation prior to installation of any temporary soil retention system components and prior to commencing any excavation. Any disturbance and/or damage to existing utilities, structures or other property caused by the Contractor in the performance of the work shall be repaired by the Contractor. Existing utility and structural information shown on the drawings was collected from information available at the time of the design. There is no guarantee of complete accuracy with the existing utility and/or structure locations.

When an obstruction is encountered, the Contractor shall notify the Engineer and, upon concurrence, the Contractor shall begin working to break up, push aside, or remove the obstruction. An obstruction shall be defined as any object (such as, but not limited to, boulders, logs, old foundations, etc.) where its presence was not obvious or specifically noted on the Plans prior to bidding, that cannot be driven or installed through or around with normal driving or installation procedures, but requires additional excavation or other procedures to remove the obstruction.

Method of Measurement: Temporary soil retention systems furnished and installed will be measured for payment in place, in square feet (square meters). The area measured shall be the minimum of vertical exposed surface area envelope of the excavation supported by temporary soil retention system. Any temporary soil retention system installed beyond dimensions shown on the Plans or the approved Contractor's design without the written permission of the Engineer, shall not be measured for payment but shall be done at the Contractor's own expense.

Basis of Payment: This work will be paid for at the contract unit price per square foot (square meter) for TEMPORARY SOIL RETENTION SYSTEM (SPECIAL).

Payment for any excavation, related solely to the installation and removal of the temporary soil retention system and/or its components, shall not be paid for separately but shall be included in the unit bid price for TEMPORARY SOIL RETENTION SYSTEM (SPECIAL). Other excavation, performed in conjunction with this work, will not be included in this item but shall be paid for as specified elsewhere in this contract.

Payment for additional work required in design or construction to adequately protect any utilities shall be included in the bid price for TEMPORARY SOIL RETENTION SYSTEM (SPECIAL).

Obstruction mitigation will be paid for according to Article 109.04.
Any costs related to obtaining technical assistance for the construction of a wall system from a particular supplier will not be paid for separately.

GATE VALVE WITH VAULT

Description: The valves shall be resilient wedge gate valves suitable for ordinary water works service, intended to be installed in a normal position on buried pipe lines or water distribution systems. Valves shall be installed where shown on the engineering plans.

The minimum requirements for all valves shall, in design, material and workmanship, conform to AWWA C509-01. All materials used in the manufacture of water works valves shall conform to the AWWA standards designed for each material listed. All exposed hardware/bolts shall be stainless steel. Gate valves allowed are Clow, American, Waterous, and Kennedy.

New water main valves, including pressure tap valves, adjacent to an existing water main, and existing water main valves shall only be operated by the City of Naperville, Department of Public Utilities CEECM Division personnel with 48-hour notice (Monday-Friday) 630-420-4122.

New valves at river crossings shall include two (2) corporation stops installed inside the vault (1 on each side of the valve). Corporations shall be 1-inch direct taps.

Vaults shall be constructed of precast concrete sections conforming to ASTM C-478 and in accordance to detail provided on plans. Payment shall be full compensation for excavation, removal of spoils, valve and vault, blocking, bedding, CA-6 backfill, and all labor materials, equipment and incidentals as shown on the plans and as specified herein to install the valve with vault.

Basis of Payment: This work will be paid for at the contract unit price each for GATE VALVE 8” WITH VAULT, 4’ DIAMETER or GATE VALVE 12” WITH VAULT, 5’ DIAMETER.

LED INTERNALLY ILLUMINATED STREET NAME SIGN

Effective: May 22, 2002
Revised: July 1, 2021
891.02TS

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^{o}C (+77^{o}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/m^2.

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.

STAIRCASE REMOVAL

Description. This work shall consist of removing and disposing of the existing concrete staircase as shown in the Plans. The removal of stairs, railing, and all foundations as needed to complete the proposed work are considered included in this item.

Construction: No removal work shall be completed without the approval of the Engineer. All associated hardware and appurtenances of the existing staircase including but not limited to post foundations, risers, railing, fittings, and accessories, shall be removed offsite and disposed of by the Contractor in a legal disposal site.

Foundations should be completely removed. Backfill shall be completed in accordance with Article 502.10 and Section 205 of the Standard Specifications for Road and Bridge Construction, latest edition.

Method of Measurement. The work shall be measured by the contract lump sum for STAIRCASE REMOVAL as indicated on the Plans and specified herein.

Basis of Payment. This work will be paid for at the lump sum contract unit price for STAIRCASE REMOVAL.

ANTI-GRAFFITI COATING

Description: This work shall consist of the furnishing and application of an anti-graffiti coating to exposed concrete surfaces designated on the plans.

General: Product features shall include: Zero VOC, 10 year unlimited warranty for graffiti removals, binary prime coat, non-yellowing, non-chalking and breathable. The anti-graffiti coating shall consist of a permanent, color stable, UV, stain, chemical and abrasion resistant coating. The removal of graffiti from the protected surfaces shall be accomplished by applying a separate removal agent as recommended by the manufacturer of the permanent coating. The removal agent shall have the capability of completely removing all types of paints and stains. After graffiti removal there shall be no damage to the anti-graffiti coating or the surface to which it is applied. Additionally, there shall be no evidence of ghosting, shadowing, or staining of the protected surface.

Qualifications: The anti-graffiti coating shall be a product that has been commercially available for a period of at least five (5) years. Contractor shall apply the material to a test patch following the manufacturer's recommendation. After the manufacturer's recommended curing period, the Engineer will apply various types of graffiti materials to the coating. After three (3) days the removal agent shall be used to remove the graffiti. If after graffiti removal the anti-graffiti coating is clean and undamaged, with no evidence of ghosting, shadowing or staining, then the anti-graffiti coating is approved for use.

Preparation: Prior to application of the anti-graffiti coating, all designated surfaces shall be cleaned of loose debris, previous coatings (except staining) and all foreign matter by a method as recommended by the coating manufacturer and approved by the Engineer. All surfaces shall be thoroughly clean, dry and free of dust that might prevent penetration of the coating. New concrete should be thoroughly cured before application of the coating. Glossy, glazed and slick troweled surfaces of unstained concrete should be lightly etched or abraded before application of the coating. Concrete surfaces shall be properly sealed according to the manufacturer's recommendations so the application of the system does not produce any noticeable long-term change in color of the surfaces being treated. A technical representative of the manufacturer shall be present to approve surface preparation and application of the anti-graffiti coating.

Weather Conditions: Coatings shall not be applied in the rain, snow, fog or mist, nor shall they be applied if these conditions are expected within twelve (12) hours of application. Coatings shall not be applied when the surface or air temperatures are less than 40º F nor greater than 100º F, or is expected to exceed these temperatures within twelve (12) hours of application.

Application: The manufacturer's product data sheets and application guides shall be submitted to the Engineer prior to coating application. All information contained in the data sheets and application guides shall be strictly followed. All coatings shall be applied in the presence of the Engineer. Film thickness shall be measured by the Contractor in the presence of the Engineer and shall be according to the manufacturer's recommendation. Application of the clear protective coating shall take place after the application and curing of the concrete sealer as appropriate for the surface to be treated (see the standard specifications for CONCRETE SEALER). In a contrasting color of the same anti-graffiti system, the name of the system used and the date of application shall be stenciled in letters not to exceed 2 inches high. The location of the stencil shall be near one end of the work at the bottom of the surface to be protected. For projects greater than 3,000 sq. ft. the stencil shall be periodically repeated once for every 3,000 sq. ft. near the bottom at the locations designated by the Engineer.

Cleaning Agent: The Contractor shall supply the Engineer with an initial quantity of the removal agent and written instructions for its use, as recommended by the manufacturer for graffiti removal. The amount shall be furnished at a rate of one (1) gallon per 81 sq. yd. of treated surface.

Measurement: This work will be measured in place per square foot of surface area upon which the anti-graffiti coating has been applied and accepted by the Engineer. No surface area will be measured for payment for areas below final grade. Applying an anti-graffiti coating to mock-up will not be measured for payment.

Basis of Payment: This Work will be paid for at the contract unit price per square foot for ANTI-GRAFFITI COATING which shall be payment in full for the cleaning of designated surfaces, the application of the anti-graffiti coating, supplying the manufacturer's technical representative and supplying the initial quantity of cleaning agent.

SANITARY SEWER REMOVAL

Description. This work shall be in accordance with Section 551 of the Standard Specifications insofar as applicable and the following provisions. This work consists of the removal of existing sanitary sewer at locations shown on the plans. The sanitary sewer removed shall not be salvaged.

The sewer shall be replaced in the same trench at the design inverts and slopes under separate pay items.

Basis of Payment. This work shall be paid for at the contract unit price per FOOT for SANITARY SEWER REMOVAL, of the diameter specified, which includes excavation and removing and disposing of the existing pipe, trench backfill, and all material, labor, and equipment for a complete removal.

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

Effective: January 1, 2019
Revised: August 15, 2022

Description. This work shall be performed in accordance with Section 502.06 of the Standard Specifications for Road and Bridge Construction, 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 for Road and Bridge Construction 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 for payment in units of 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).

REMOVING MANHOLES, SPECIAL

Description. This work shall consist of the removal of an existing manhole in accordance with Article 895 of the Standard Specifications.

The Contractor shall coordinate with the City to confirm existing cables within the manhole have been disconnected prior to the removal of the manhole. The existing manhole shall be broken up and removed completely and backfilled with approved material. The concrete debris shall be disposed of outside the right-of-way, and the frame and cover disposed of as directed by the Engineer.

Basis of Payment: This work will be paid for at the contract unit price per each for REMOVING MANHOLES, SPECIAL.

FIBER OPTIC TRACER CABLE

Effective: May 22, 2002
Revised: July 1, 2015
817.02TS

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 inches (100 mm) and with a minimum 1 inch (25 mm) coverage over the XLP insulation, underwater grade.

Add the following to Article 817.05 of the Standard Specifications:

Basis of Payment. The tracer cable shall be paid for separately as ELECTRIC CABLE IN CONDUIT, TRACER, NO. 14 1C per foot (meter), which price shall include all associated labor and material for installation.

LUMINAIRE, LED, SPECIAL

Description. This item shall consist of furnishing and installing a area style LED luminaire, fuses, fuse holders, and all required hardware as specified herein at the locations shown on the plans and per Article 821 of the Standard Specifications.

Luminaire: The luminaire shall be model number EALS-03-0-F3-AW-7-40-N-D-D1-BLCK, as manufactured by General Electric.

Color Temperature: LED’s shall be 4000K color temperature.

Initial Lumen Output: Initial lumen output shall be 15,100 lumens.

Optics: The luminaire shall provide Type III light distribution per IES classifications.

Finish: The luminaire shall have a black finish.

Warranty: The luminaire shall be warranted for 10 years minimum.

Basis of Payment. This work will be paid for at the contract unit price per each for LUMINAIRE, LED, SPECIAL which shall include all labor, materials, and equipment to complete the installation as described herein.

WIRELESS IN PAVEMENT DETECTOR

Description. This work shall consist of furnishing and installing a wireless in pavement detector with the City of Naperville's existing wireless vehicle detection system, "Trafficware" brand "POD Detection System", as specified in the Plans, specification herein; and as directed by the Engineer.

General. Wireless magnetometers shall be embedded in the roadway at prescribed depths and configurations to detect vehicles traveling along a roadway by measuring the magnetic field distortion caused as vehicles pass through the device's detection zone.

Wireless Magnetometer.

The wireless magnetometer components shall be enclosed in a hermitically sealed, non-resin filled enclosure. The form factor shall be circular three and five-eighths inches (3 - 5/8 in.) diameter by two inches (2 in.). The wireless magnetometer enclosure shall have a recessed lower radius with flanged struts to serve as interlocking teeth for proper alignment with the wireless magnetometer installation housing.

The wireless magnetometer shall be constructed with four (4) magneto-resistive sensors using an ultra-low-power microcontroller to implement its vehicle sensing function. The wireless magnetometer shall be placed at a depth not less than three inches (3 in.) and no more than five inches (5 in.) from the road surface to the top of the wireless magnetometer.

The wireless magnetometer model number, part number and serial number with a correlating 2D QR code shall be displayed on the top of the wireless magnetometer. Each wireless magnetometer shall be temperature tested in an environmental chamber by the manufacturer prior to shipment.

The Contractor shall install wireless magnetometers at locations as specified in the Plans or as directed by the Engineer.

Installation Housing.

The wireless magnetometer installation housing or shell shall be constructed so that the form factor nests uniformly with the wireless magnetometer form factor. The shell shall be transparent so that the wireless magnetometer's identification information is clearly visible.

The shell shall have two (2) halves that are adjoined by a self-clamping and seating surface. The shell shall not permit epoxy to enter the interior of the housing. Three flanges integrated into the design of the shell shall allow the wireless magnetometer to hang from the roadway's surface.

Upon removal of the wireless magnetometer and shell assembly from the roadway utilizing the proper bit size, the shell's upper section shall be able to break away freely so that the undamaged wireless magnetometer can be retrieved with minimal effort.

Wireless Magnetometer Functional Capability.

The wireless magnetometer shall transmit vehicle detection and device status information to the access point over 900 MHz ISM band. The wireless magnetometer shall utilize frequency-hopping spread spectrum techniques to co-exist with in-band RF interference. The wireless magnetometer has bidirectional wireless communication with the access point to send vehicle detection events, wireless magnetometer status and receive configuration data and firmware upgrades. Wireless magnetometers shall be of one make and model and be capable of vehicle detection, vehicle counting and speed detection.

Power.

The wireless magnetometer shall be powered by modular and replaceable D-cell Lithium/Thionyl Chloride battery with a design life of up to a ten (10) years with an average of 700 activations per hour.

Detection Zone Programming.

The wireless magnetometer shall accurately sense the presence of a vehicle within the detection zone in any roadway condition where the roadway is sufficient for normal and safe operation. The wireless magnetometer shall be capable of detecting vehicles within a six by six foot (6 ft. x 6 ft.) zone such that detection accuracy is maintained within a three foot (3 ft.) lateral zone of tolerance and a three foot (3 ft.) zone of tolerance for upstream and downstream detection activation and termination. The wireless magnetometer's vehicle detection zone sensitivity shall be configurable such that the lateral offset and upstream and downstream detection activation and termination locations can be modified within 6 ft. x 6 ft. detection zone. Transmission of vehicle detection data from the wireless magnetometer to the access point shall not be impeded by vehicles with low ground clearance.

The wireless magnetometer shall be self-monitoring and automatically adjust to changing conditions that might affect vehicle detection. The wireless magnetometer shall be configured into groups of vehicle detection zones and within these groups perform independent functions for vehicle counting and speed detection. The wireless magnetometer shall have the capability to provide vehicle detection information to multiple independent purposed zones.

Demand Presence Detection Performance.

The wireless magnetometer shall provide typical detection response time less than or equal to one hundred milliseconds (≤ 100 ms) and maximum response time less than or equal to one second (≤ 1 s).

Count Detection Performance.

The wireless magnetometer shall be capable of providing vehicle counts within a maximum ten percent (10%) rate of error compared to visual ground truth. Vehicle counting by the wireless magnetometers shall be a separate and independent function from general vehicle detection or speed detection. Single wireless magnetometers shall support count and presence simultaneously.

System Installation.

The supplier of the wireless magnetometer detection system shall be present at each intersection to supervise the installation and testing of the entire system by the Engineer or electrical contractor.

Warranty, Service, & Support.

Wireless in pavement detectors shall be warranted against material and manufacturing defect for five (5) years.

Basis of Payment. This work will be paid for at the contract unit price per each WIRELESS IN PAVEMENT DETECTOR.

VIDEO VEHICLE DETECTION SYSTEM

Effective: January 1, 2020
886.04TS

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 1280x800 resolution.

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, free from material and workmanship defects for a period of two years from final inspection.

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.

FORM LINER TEXTURED SURFACE, SPECIAL

Description. This work shall consist of furnishing and installing form liners and forming concrete using reusable, high-strength urethane form liners to achieve the concrete treatments as shown in the drawings and specifications. Form lined surfaces shall include areas of parapets, abutments and wing walls as shown on the plans. All work shall be performed in accordance with applicable portions of Section 503 of the Standard Specifications and as specified herein.

Shop Drawings. Shop drawings of the Form Liner shall be submitted for each area of textured concrete. Shop drawing submittals shall include:

1. Individual form liner pattern descriptions, dimensions, and sequencing of form liner sections. Include details showing all that apply: typical cross sections, joints, corners, step footings, stone relief, stone size, pitch/working line, mortar joint and bed depths, joint locations, edge treatments, and any other special conditions.

2. Elevation views of the form liner panel layouts for the specified texture pattern showing the full length and height of the structure with each form liner panel outlined. The arrangement of the form liner panels shall provide a continuous pattern of desired textures and colors with no interruption of the pattern made at the panel joints.

Cast Concrete Mockup. The Contractor shall provide a cast concrete mockup containing the specified texture patterned form liner surface. The form liner manufacturer's technical

representative shall be on-site for technical supervision during the installation and removal operations.

Purpose of the mockup is to confirm the specified texture pattern and installation methods to be used.

1. Locate mockup on-site as directed by the Engineer.

2. The wall mockup shall be a minimum of one full panel x parapet height x 6 in. thick.

3. Include examples of each condition required for construction i.e. liner joints, construction joints, expansion joints, steps, corners, and special conditions due to topography or manmade elements, etc.

5. Upon receipt of comments from inspection of the mockup, adjustments or corrections shall be made to the molds where imperfections are found. If required, additional mockups shall be prepared when the initial mockup is found to be unsatisfactory.

Materials.

Form Liners. Form liners shall be of high quality, highly reusable and capable of withstanding anticipated concrete pour pressures without causing leakage or causing physical defects. Form liners shall attach easily to pour-in-place forms and be removable without causing concrete surface damage or weakness in the substrate. Liners used for the specified texture pattern shall be made from high-strength elastomeric urethane material which shall not compress more than 0.02 feet when poured at a rate of 10 vertical feet per hour. Form release agents shall be non-staining, non-residual, non-reactive and shall not contribute to the degradation of the form liner material. Forms for smooth faced surfaces shall be plastic coated or metal to provide a smooth surface free of any impression or pattern.

If the Contractor elects to use form ties for concrete forming, only fiberglass form ties will be permitted. Use of removable metallic form ties will not be allowed.

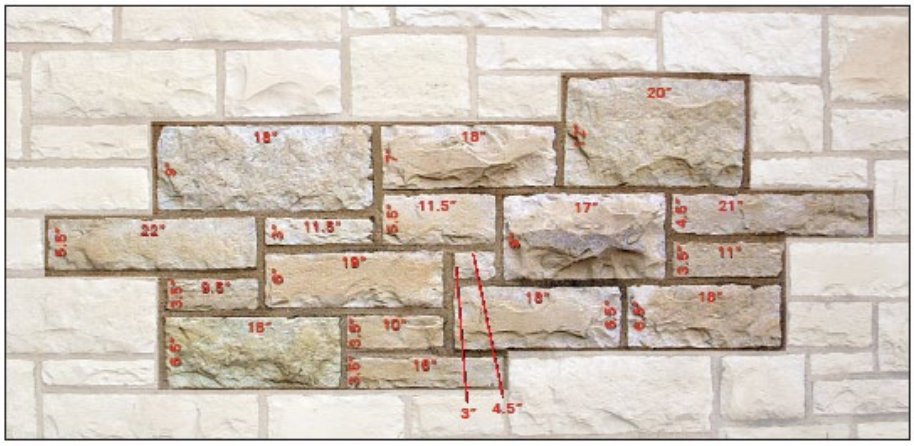
Deliver materials in original and sealed containers, clearly marked with the manufacturer’s name, brand name, type of material, batch number, and date of manufacture.

Store concrete stain materials in an area where temperatures will not be less than 50°F (10°C) or more than 100°F (38°C) and in accordance with OSHA and local Fire Code Requirements.

The form liner pattern shall match the existing Main Street bridge and shall consist of a Random Ashlar Limestone texture with a maximum 1-1/2” relief, as detailed on the plans.

The following form liner manufacturers have been pre-approved to provide patterned form liners. All manufacturers of form liners shall adhere to the provisions listed herein and in the plans.

1. Custom Rock International, www.customrock.com
2. American Formliners, Inc., www.americanformliners.com
3. Fast Formliners, Inc., www.fastformliners.com



The pattern shall be constructed with a square cut random ashlar rusticated limestone surface with a 1 ½" relief. The aesthetic surface treatment shall be accomplished by the use of form liners as specified.

Asperities are depressions in the surface of the wall with variable geometric configurations which can be placed within one of three categories: perpendicular, rounded, or angled surface interruptions. The asperity dimensions may present more resistance to an impacting vehicle sliding on the wall surface creating a potential for snagging to the vehicle.

Construction. Form liners shall be installed in accordance with the manufacturers' recommendations to achieve the highest quality concrete appearance possible. Form liners shall withstand concrete placement pressures without leakage causing physical or visual defects. A form release agent shall be applied to all surfaces of the liner which will come in contact with concrete as per the manufacturer's recommendations. After each use, liners shall be cleaned and made free of build-up prior to the next placement, and visually inspected for blemishes or tears. If necessary, the form liners shall be repaired in accordance with the manufacturer's recommendations. All form liner panels that will not perform as intended or are no longer repairable shall be replaced. An on-site inventory of each panel type shall be established based on the approved form liner shop drawings and anticipated useful life for each form liner type.

The liner shall be securely attached to the forms according to the manufacturer's recommendations. Liners shall be attached to each other with flush seams and seams filled as necessary to eliminate visible evidence of seams in cast concrete. Liner butt joints shall be blended into the pattern so as to create no visible vertical or horizontal seams or conspicuous form butt joint marks. Liner joints must fall within pattern joints or reveals. Finished textures shall be continuous without visual disruption and properly aligned over adjacent and multiple liner panels. Continuous or single liner panels shall be used where liner joints may interrupt the intended pattern. Panel remnants shall not be pieced together.

The Contractor shall coordinate concrete pours to prevent visible differences between individual pours or batches. Concrete pours shall be continuous between construction or expansion joints.

Cold joints shall not occur within continuous form liner pattern fields. Wall ties shall be coordinated with the liner and form to achieve the least visible result. Liners shall be stripped between 12 and 24 hours as recommended by the manufacturer. Curing methods shall be compatible with the desired aesthetic result. Use of curing compounds will not be allowed. Concrete slump requirements shall meet the form liner manufacturers' recommendations for optimizing the concrete finish, as well as the IDOT's material specifications and special provisions.

With the use of standard Portland cement concrete mixtures, the Contractor shall employ proper consolidation methods to ensure the highest quality finish. Internal vibration shall be achieved with a vibrator of appropriate size, the highest frequency and low to moderate amplitude. Internal vibrator operation shall be at appropriate intervals and depths and withdrawn slowly enough to assure a minimal amount of surface air voids and the best possible finish without causing segregation. External form vibrators may be required to assure the proper results. Any use of external form vibrators must be approved by the form liner manufacturer and the Engineer. The use of internal or external vibratory action shall not be allowed with the use of self-consolidating concrete mixtures. It is the intention of this specification that no rubbing of flat areas or other repairs shall be required after form removal. The finished exposed formed concrete surfaces shall be free of visible vertical seams, horizontal seams, and butt joint marks. Grinding and chipping of finished formed surfaces shall be avoided.

Method of Measurement. This work shall be measured and paid for in place per square foot of concrete surface area formed.

Basis of Payment. This work will be paid for at the contract unit price per square foot for FORM LINER TEXTURED SURFACE, SPECIAL including all labor and material costs associated with forming, pouring, disposal of forms, including a satisfactory cast concrete mockup panel to the requirements included herein.

CLASS D PATCHES (SPECIAL)

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 Resident 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).

SEGMENTAL BLOCK WALL REMOVAL

Description: This work shall consist of the removal, offsite disposal, and grading of segmented block walls according to Section 501 of the Standard Specifications, as detailed on the plans and as modified herein.

The existing segmented block walls designated for removal on the plans shall be removed entirely, as required for the construction of the bridge and parking area.

Method of Measurement. The segmented block wall removal will be measured for payment per FOOT along the top of the existing wall.

Basis of Payment: This work shall be paid for at the contract unit price per FOOT for RETAINING WALL REMOVAL.

TEMPORARY RAMP (SPECIAL)

Description. This work shall consist of the construction and removal of temporary HMA ramps.

The ramps shall be constructed at all driveway entrances immediately upon completion of the milling operation and when the drop-off is greater than 2.5 in. (64mm). Ramps shall be 2 in. (51mm) in height by 24 in. (600mm) in width along the full width of the driveway.

The contractor shall use HMA according to Section 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 temporary ramps shall be removed just prior to placing the proposed binder course.

Method of Measurement. Temporary Ramp (Special) will be measured for payment in place and the area computed in square yards (square meters).

Basis of Payment. Temporary Ramp (Special) will be paid for at the contract unit price per square yard (square meter) for TEMPORARY RAMP (SPECIAL).

WATER MAIN TO BE ABANDONED

Description
The existing water main shall be abandoned and filled. Fill options include CLSM, cement grout or engineered fill cellular concrete grouting. Cement grout shall be a pumpable mixture of fine aggregate, cement meeting the requirements of ASTM C-150 and water to meet the minimum strength requirement. The minimum compressive strength of the installed fill shall be 40 psi. The Contractor shall be responsible for furnishing and installing a fill material to completely fill the pipe. The Contractor shall submit proposed fill material and installation method for review by the Engineer. The review shall relate to applicability of the material and method and shall not

relieve the Contractor of responsibility to furnish applicable material and installation methods to completely fill the pipe.

The pipe shall be drained prior to installation of the fill. The pipe fill shall be installed from the low end of the pipeline and pumped into the pipe to completely fill the void to the upstream manhole or vent pipe. An open riser shall be installed on the high end of the pipeline fill section above the top of the pipe to determine that pipeline is being completely filled. The filling of each pipeline section shall be in one continuous operation. The pipe may be filled as one complete section or individual sections. All costs to sectionalize the pipeline, if filling operation cannot be performed in one operation, shall be included in the cost and will not be paid separately; this includes but is not limited to additional excavation, granular trench backfill, curb and gutter removal and replacement, pavement removal and replacement, etc.

Ends of all remaining pipes to be filled shall be cut and capped with a mechanical joint plug.

Basis of Payment
Payment shall be made at the contract unit price per foot for WATER MAIN TO BE ABANDONED of the diameter specified which shall be full compensation for all material, equipment, and labor required to complete this work, including restoration in the form of pavement patching, sidewalk replacement, driveway replacement, seeding, or sodding.

WATER MAIN REMOVAL

Description. This work shall consist of the removal and disposal of existing water mains at locations as shown on the plans or as directed by the Engineer. The existing water mains to remain in service shall first be cut and capped according to the Plans and Specifications. The water mains shall be removed and disposed of as specified in the applicable portions of Section 501 of the Standard Specifications.

Trench backfill for the excavated area shall not be paid for separately but shall be considered included in this pay item.

Basis of Payment. This work will be paid for at the contract unit price per FOOT for WATER MAIN REMOVAL of the diameter specified. Restoration and cutting / capping of the existing mains to remain in service shall not be paid for separately but shall be included in the cost of the work.

WATER SERVICE LINE, SPECIAL

Description
This work shall consist of furnishing all material, equipment and labor for the connection of existing water services to the proposed water main. Water services may be installed using open trench or trenchless method to the location required as shown on plans.

Trenching
Trenches shall not exceed 1 ft in width without prior approval of the Engineer. The trenches shall be constructed to permit easy installation of service without twists or sharp bends. The bottom of

the trench shall be built up with suitable compacted backfill material so the service will have a smooth bed.

Where separate services are to be installed parallel with each other, one common trench shall be used. At the locations where a trench crosses other existing utilities, the trench shall be hand dug 6.5 ft to either side of the crossing. Backfill material shall be free of brick, rock, or any material that could damage the piping. Backfill material for trenches where the inner edge of the trench is within 2 ft of the edge of the proposed pavement, curb, gutter, curb and gutter, stabilized shoulder, or sidewalk shall be trench backfill. Backfill shall be deposited in uniform lifts not exceeding 6 in. thick loose measure. The material in each lift shall be mechanically compacted by tamping with power tools approved by the Engineer in such a manner as not to disturb or damage the pipe.

General
Water services shall be type “K” copper tubing of the size specified, of sufficient length to connect the proposed water main to the proposed buffalo box; no service couplings shall be allowed. They shall be connected to the corporation stop in accordance with the manufacturer’s recommendations. Proposed buffalo boxes shall be placed adjacent to existing buffalo boxes so that existing service lines from buffalo box to residence can be reconnected. Reducer couplings required to connect to existing services smaller than the proposed size shall be compression type and included in the unit price bid for the proposed services of the size specified.

Re-excavation of trench backfill (placed after water main installation, permanent or for temporary access) for water service installation shall be considered incidental to the contract. Trench Backfill will not be paid for separately but will be considered incidental to this pay item. No curb or pavement removal and replacement will be paid under this pay item. Any curb or pavement removal and replacement necessary to construct this item shall be considered as incidental to this pay item.

The Contractor shall coordinate with each homeowner or business and provide adequate notice for disruptions related to service transfers. As the project takes place in a commercial corridor, the Contractor shall coordinate with each business to determine the appropriate time of day for disruptions related to service transfers.

Water Service, Near Side & Far Side
Water services shall be installed from the new main up to and including the new B-Box. Services shall be equipped with a corporation stop, curb stop and curb box per the standard detail. Curb boxes shall be arch type one and one-half (1-1/2") inch I.D. box with no rod for one and one-half (1-1/2") inch or two (2”) inch curb stop. Curb box shall be capable of extensions and installed at finished grade conforming to a minimum depth of bury of the service line as provided on the plans. Curb stops are to be compression type by Mueller or Ford. It will be the responsibility of the Contractor to determine the exact size coupling necessary to connect the new copper to the existing service.

Lead Water Service Replacement
Any lead services identified on the plan or found during construction shall be replaced in their entirety. Service replacement up to and including the curb stop and box will be paid for as WATER SERVICE REPLACEMENT, 1.5” (LONG). The remainder of the replacement up to and including the indoor meter will be paid for as WATER SERVICE LINE, SPECIAL. The Contractor shall

coordinate work on the property and inside the building with the property owner, construction engineer and Water Utilities staff. Water Utilities will provide a new meter for the Contractor to install. All work shall be performed in a manner acceptable to the engineer and Water Utilities.

Basis of Payment.
Work up to and including the curb stop and box will be paid for at the contract unit price per each for WATER SERVICE REPLACEMENT, 1.5" (LONG). Payment shall be full compensation for excavation, tapping of the proposed water main, copper service line, curb box, buffalo box, reconnecting existing service, removal of spoils, trench backfill and all labor materials, equipment and incidentals as shown on the plans and as specified herein to provide a working system.

Work between the new buffalo box up to and including the indoor meter will be paid for at the contract unit price per foot as WATER SERVICE LINE, SPECIAL. This pay item includes all excavation, trench backfill, basement wall penetration, water-proof wall patching, meter installation and installation of new 1 ½" copper service piping.

FIRE HYDRANT COMPLETE

Description
Fire hydrants shall be Clow Medallion, Waterous Pacer WB-67, or Mueller A-421 with a 5 ¼" valve opening. Model shall be a breakaway flange type and shall be equipped with two 2-1/2 inch hose connections and one 4-1/2 inch male pumper connection. Outside diameter of the male thread on the 2 ½" inch hose connection shall be National Standard threads.

A suitable tee of the quality and kind herein specified shall be placed in the water main opposite each of the fire hydrants and shall be connected with the hydrant by means of the valve and connecting pipe. Each hydrant should be provided with stainless steel rods, restrained joints, meg-a-lug joint restraint, along with thrust block. All joints from the tee at the main to the fire hydrant shall be restrained. See City of Naperville Standard Detail on the plans for further information.

Each hydrant shall be provided with a drain that will leave no water standing in the barrel of the hydrant when the hydrant is closed. This drain shall close tightly before the hydrant begins to open. The hose and pumper connections shall be securely leaded and locked into the hydrant and each shall be provided with a suitable cast iron threaded cover securely attached to the hydrant.

The fire hydrant shall be designed to withstand, without leaking or damage to the hydrant, a hydraulic pressure of 300 pounds per square inch and an operating pressure of 150 pounds per square inch.

Gate valves shall meet the requirements of the latest revision of AWWA C509. Gate valves shall open to the left (counter clockwise) and shall have mechanical joints ends. Gate valves through 12" in diameter shall have resilient seats. Gate valves installed in fire hydrant leads shall have "O" ring stuffing box. Gate valves shall be as manufactured by Clow, American, Waterous, or Kennedy. Stem, indicators, and all working parts shall be fully protected from moisture or weather

damage by complete enclosure. Operating nuts shall be bronze. Operating nuts shall be 2 inches square.

Each hydrant shall be rodded to the supplying tee fitting and set on a flat stone or concrete thrust block not less than 24 inches by 24 inches by 4 inches in thickness. A minimum of one-half cubic yard of gravel shall be placed around the base of the hydrant in order to provide drainage for the hydrant drain.

All hydrants shall be set plumb and shall have their nozzles parallel with edge of pavement; the pumper connection shall be facing the edge of pavement. Hydrants shall be set to the established grade, with nozzles eighteen (18") inches above the ground or as directed by the OWNER.

All nuts, bolts and threaded rods and lugs, buried or in vaults, shall be stainless steel, Type 304 or better.

All excavation around the fire hydrant and auxiliary valve shall be backfilled to the natural line or finished grade as rapidly as possible. The backfill material shall consist of the excavated material or trench backfill as herein specified.

All backfill material shall be deposited in the excavation in a manner that will not cause damage to the fire hydrant or auxiliary valve. Any depressions which may develop within the area involved in a construction operation due to settlement of backfill material shall be filled in a manner consistent with standard practice.

The fittings, piping and valves for the hydrant shall be provided with restrained joints in addition to the rodded connection and the thrust block behind the base elbow. Hydrants shall have polyethylene encasement to surface.

Each hydrant shall be factory painted using Tnemec-Gloss Safety Orange or Versatone 82HS. Hydrants delivered with other paint systems or colors shall be rejected. Nozzle chains shall be removed/ not permitted.

All retainer glands when required to restrain valves, fittings, hydrants, and pipe joints shall be mechanical joint wedge action type MEGALUG 1100 Series as manufactured by EBBA Iron, Inc. or UNI-FLANGE BLOCKBUSTER 1400 SERIES as manufactured by Ford Meter Box Co. and shall be for use on ductile iron pipe conforming to ANSI/AWWA C151/A21.51, for nominal pipe sizes 3" through 48".

Basis of Payment

This work shall be paid for at the contract unit price per each for FIRE HYDRANT COMPLETE. Payment shall be for full compensation for the tee, pipe and fittings from the tee to the hydrant, fire hydrant with auxiliary valve and box complete and including all appurtenances, drainage stone, thrust blocks, backfilling, and restoration.

MANHOLE, SPECIAL

Description: This item shall consist of furnishing and installing a precast electric manhole with frames and covers at the locations shown in the plans.

Materials: Materials shall be as detailed in the plans.

Backfilling. Backfill shall be placed and compacted in 6-inch lifts. Any backfilling necessary under a pavement, paved shoulder, sidewalk, or within 2 feet of the pavement edge shall be made with sand or stone screenings.

The backfill shall be compacted according to Article 550.07.

Basis of Payment: This work will be paid for at the contract unit price per each for MANHOLE, SPECIAL.

SANITARY MANHOLE, SPECIAL

Description.
This work shall consist of the construction of the sanitary sewer manhole on the upstream (south) side of the dual siphon sanitary sewer crossing of the West Branch of the DuPage River, installed at the location shown on the plans and shall be in accordance with the detail SANITARY MANHOLE, SPECIAL, Sections 602 and 604 of the Standard Specifications and Section 32 of the “Standard Specifications for Water and Sewer Construction in Illinois,” latest edition.

Construction Requirements.
SANITARY SEWER, SPECIAL shall be constructed as specified in the special provision for sanitary sewer manhole except as noted in this provision and the detail.

Method of Measurement.
This work will be paid at the contract unit price each for SANITARY MANHOLE, SPECIAL, which price shall be full compensation for all work and materials, excavation, removal of spoils, connections to existing and proposed pipes, bedding, backfill, vacuum testing, and any other incidental items required for a completed structure as shown on the associated detail including the frames and closed lids.

VALVE VAULTS TO BE REMOVED

Description. This work shall consist of removing the valve and vault of the existing water main to be abandoned or removed. At locations specified on the plans or at locations specified by the Engineer, this work shall consist of all labor, equipment, and material necessary to remove and dispose of existing valves and vaults in accordance with all applicable portions of Section 602 of the Standard Specifications.
Cut existing water main at least two feet away from existing valves and plug pipe in accordance water main abandonment or removal requirements.

Water Utilities shall have the option to salvage any parts from valves to be removed. Any items not salvaged shall be disposed of by the contractor. Existing water valves shall be delivered to the Department of Public Works at the City's request.
Basis of Payment. This work shall be paid for at the contract unit price per each for VALVE VAULTS TO BE REMOVED.

STEEL PLATE BEAM GUARDRAIL, ATTACHED TO STRUCTURES (SPECIAL)

Description. This work shall consist of furnishing and installing new guardrail and posts onto the proposed retaining wall as shown on the plans and as directed by the Engineer. The guardrail shall be side-mount anchored to the face of the wall as shown on IDOT Standard Drawing 630111-01.

Method of Measurement. This work will be measured according to Section 630.07 of the Standard Specifications for Road and Bridge Construction.

Basis of Payment. This work shall be paid for at the contract unit price per foot for STEEL PLATE BEAM GUARDRAIL, ATTACHED TO STRUCTURE (SPECIAL). This work shall include all labor, equipment and material necessary to install Steel Plate Beam Guardrail.

TEMPORARY CHAIN LINK FENCE

Description. This work shall consist of installing a temporary chain link fence six feet (6') in height, including rails, posts, screens and gates as shown on the plans and as directed by the Engineer.

The work shall meet the requirements of Standard Specification Section 664 and Highway Standard 664001. The temporary chain link fence may be new, used or rented. The temporary chain link will remain the property of the Contractor after construction.

Method of Measurement. This work shall be measured in place and measured per lineal FOOT for fence and gates. Payment shall be based on actual length of fence erected without change in unit price because of adjustment in plan quantities due to field conditions.

Basis of Payment. This work will be paid for at the contract unit price per FOOT for TEMPORARY CHAIN LINK FENCE WITH SCREENING, which will be payment in full for the material and work described herein.

INTERCEPT EXISTING CONDUIT

Description. This item consists of intercepting an existing conduit or raceway for the purpose of installing new electrical equipment, a new lighting unit foundation, handhole, or manhole and making a connection to a new conduit.

General Requirements. Work under this item shall be performed in accordance with Sections 800, 810 and 1088 of the Standard Specifications.

Construction Requirements - Traffic Signals. The Contractor shall pull back the existing cables and carefully cut the conduit or raceway so that the cut conduit ends can be installed in the handhole. This item shall include all work necessary to bring the conduit and cables into the foundation. All new conduit required to intercept the existing conduit and make the necessary connections to install the conduit run into the handhole will not be paid for separately and shall be included in this item. The Contractor shall furnish and install all materials for a complete installation.

Construction Requirements – Roadway Lighting. The Contractor shall pull back the existing lighting cables and carefully cut the conduit or raceway so that the cut conduit ends are smooth. For embedded conduits, the contractor shall carefully remove the existing concrete encasement around the conduit to be intercepted and thoroughly clean the conduit for a proper connection to the new conduit. This item shall include all work necessary to connect new conduit runs to the existing conduit runs. All new conduit and conduit fittings required to intercept the existing conduit and make the necessary connections to create a continuous conduit run will not be paid for separately and shall be included in this item. The Contractor shall furnish and install all materials for a complete installation.

Method of Measurement. This work will be measured on a per each basis each for conduit end cut.

Basis of Payment. This work will be paid for at the contract unit price per each for INTERCEPT EXISTING CONDUIT, which will be payment in full for the material and work described herein.

LIGHTING UNIT, COMPLETE, SPECIAL

Description. This work shall consist of the furnishing and installation of a luminaire and light pole as shown on the plans and in accordance with Section 821 except as modified herein. This work shall include all labor, materials and equipment necessary for proper installation.

The luminaire and light pole specified for this installation is as follows:

Caged Acorn Luminaire: Model EPAS-02-0-04-D-40-D-A-H-A-BLCK-037 as manufactured by General Electric. The luminaire shall provide 4,200 Lumens at 4,000 degrees Kelvin with a Type III distribution. Finish shall be black. Warranty shall be a minimum of 5 years.

Pedestrian Light Pole: Model DB9-4F10-188-TEN3-BL-RBC-ABT (3” TENON) as manufactured by Architectural Area Lighting. The pole shall be in accordance with City of Naperville Standard Detail 690.09.

Measurement and Payment. This item shall be paid at the contract unit price each for LIGHTING UNIT COMPLETE, SPECIAL which shall be payment in full for the material and work described herein.

LIGHT POLE FOUNDATION, SPECIAL

Description. This work shall consist of furnishing and installing an 18 inch diameter reinforced concrete light pole foundation for an ornamental post top type light pole as shown on the plans. All work related to the installation of the foundation shall be included (excavation, reinforcement, ground rod, concrete, anchor bolts, raceways, backfilling, and disposal of surplus excavate material, etc.)

Materials. All materials shall be in accordance with the contract plan drawings and Sections 1020 and 1070.

Construction Requirements. All work shall be installed as shown on the contract plan drawings and in accordance with Sections 836 of the Standard Specifications. The Contractor shall be responsible for coordinating all work.

Measurement and Payment. The work shall be paid for at the contract unit price per foot for LIGHT POLE FOUNDATION, SPECIAL which shall be payment in full for all work listed herein.

REMOVE AND RE-ERECT EXISTING LIGHTING UNIT

Description: This work shall consist of removing, storing, and later reinstalling existing light poles and luminaires at the locations shown in the plan.

Prior to the removal of any lighting equipment, the Contractor shall schedule an inspection with the Engineer to review the condition of the equipment. Any deficiencies shall be corrected prior to removal. A minimum of 7 days advanced notice shall be provided prior to the inspection.
All removed materials shall be stored offsite at a secure facility for the duration of the project. Equipment shall be protected from the elements. The Contractor shall provide all wood blocking, banding, or other appurtenant items required for proper stacking, protection and storage. The Contractor shall be responsible for any damage that occurs while the equipment is in the possession of the Contractor. Repairs or replacement will be made at no additional cost to the Department.

Basis of Payment: This work will be paid for at the contract unit price per each for REMOVE AND RE-ERECT EXISTING LIGHTING UNIT, which shall be payment in full for all labor materials, tool and equipment necessary for removing, protecting, storing, and re-erecting the poles, breakaway devices and luminaires as described herein.

COILABLE NON-METALLIC CONDUIT

Effective: May 22, 2002
Revised: July 1, 2015
810.01TS

Description.
This work shall consist of furnishing and installing empty coilable non-metallic conduit (CNC).

General.
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 (3m) 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: July 1, 2015
810.02TS

Revise Article 810.04 of the Standard Specifications to read:

> "Installation. All underground conduits shall have a minimum depth of 30-inches (700 mm) below the finished grade."

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."

Add the following to Article 810.04 of the Standard Specifications:

> "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 or 300 mm (12") 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 3 mm (0.125") 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
810.03TS

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 lineal 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

Description.
Add the following to Section 814 of the Standard Specifications:

All conduits shall enter the handhole at a depth of 30 inches (762 mm) except for the conduits for detector loops when the handhole is less than 5 feet (1.52 m) 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 coated with hot-dipped galvanization in accordance with AASHTO Specification M111. Hooks shall be a minimum of 1/2 inch (13 mm) diameter with two 90 degree bends and extend into the handhole at least 6 inches (152 mm). Hooks shall be placed a minimum of 12 inches (305 mm) 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.

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.”

Add the following to Article 814.03 of the Standard Specifications:

> “(c) 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 inch (13 mm) thickness shall be placed between the handhole and the sidewalk.”

Cast-In-Place Handholes.
All cast-in-place handholes shall be concrete, with inside dimensions of 21-1/2 inches (546 mm) minimum. Frames and lid openings shall match this dimension.

For grounding purposes the handhole frame shall have provisions for a 7/16 inch (11 mm) 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 12 inches (305mm).

Precast Round Handholes.
All precast handholes shall be concrete, with inside dimensions of 30 inches (762mm) diameter. Frames and covers shall have a minimum opening of 26 inches (660mm) and no larger than the inside diameter of the handhole.

For grounding purposes the handhole frame shall have provisions for a 7/16 inch (11 mm) 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 inch (11 mm) 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 inches (152 mm).

Precast round handholes shall be only produced by an approved precast vendor.

Materials.
Add the following to Section 1042 of the Standard Specifications:

"1042.17 Precast Concrete Handholes. Precast concrete handholes shall be according to Articles 1042.03(a)(c)(d)(e)."

FIBER OPTIC CABLE

Effective: May 22, 2002
Revised: July 1, 2015
871.01TS

Add the following to Article 871.01 of the Standard Specifications:

The Fiber Optic cable shall be installed in conduit or as specified on the plans.

Add the following to Article 871.02 of the Standard Specifications:

The control cabinet distribution enclosure shall be 24 Port Fiber Wall Enclosure, unless otherwise indicated on plans. The fiber optic cable shall provide twelve fibers per tube for the amount of fibers called for in the Fiber Optic Cable pay item in the Contract. Fiber Optic cable may be gel filled or have an approved water blocking tape.

Add the following to Article 871.04 of the Standard Specifications:

A minimum of six multimode fibers from each cable shall be terminated with approved mechanical connectors at the distribution enclosure. Fibers not being used shall be labeled "spare." Fibers not attached to the distribution enclosure shall be capped.. A minimum of 13.0 feet (4m) of extra cable length shall be provided for controller cabinets. The controller cabinet extra cable length shall be stored as directed by the Engineer.

Add the following to Article 871.06 of the Standard Specifications:

The distribution enclosure and all connectors will be included in the cost of the fiber optic cable.

Testing shall be in accordance with Article 801.13(d). Electronic files of OTDR signature traces shall be provided in the Final project documentation with certification from the Contractor that attenuation of each fiber does not exceed 3.5 dB/km nominal at 850nm for multimode fiber and 0.4 bd/km nominal at 1300nm for single mode fiber.

ELECTRIC CABLE

Effective: May 22, 2002
Revised: July 1, 2015
873.01TS

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.

TRAFFIC SIGNAL POST

Effective: May 22, 2002
Revised: July 14, 2021
875.01TS

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 posts shall be steel and bases shall be cast iron. All posts and bases 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.

MAST ARM ASSEMBLY AND POLE

Effective: May 22, 2002
Revised: July 01, 2015
877.01TS

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: November 01, 2018
878.01TS

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.

No foundation is to be poured until the Resident Engineer gives his/her 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.

CONCRETE FOUNDATION, PEDESTRIAN POST
Effective: April 1, 2019
Revised: November 1, 2020
878.03TS

This item shall follow Section 878. Traffic Signal Concrete Foundation of the Standard Specifications.

No foundation is to be poured until the Resident Engineer gives his/her approval as to the depth of the foundation.

Basis of Payment.

This work will be paid for at the contract unit price per foot of depth of CONCRETE FOUNDATION, TYPE A 12-INCH DIAMETER.

LIGHT EMITTING DIODE (LED) SIGNAL HEAD AND OPTICALLY PROGRAMMED LED SIGNAL HEAD

Effective: May 22, 2002
Revised: July 1, 2015
880.01TS

Materials.
Add the following to Section 1078 of the Standard Specifications:

1. 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.

2. 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.

3. All signal heads shall provide 12" (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.

4. 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 within the first 7 years from the date of traffic signal TURN-ON. 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) [VTSCH], or applicable successor ITE specifications, or show signs of entrance of moisture or

contaminants within the first 7 years of the date of traffic signal TURN-ON 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.

(a) Physical and Mechanical Requirements

1. Modules can be manufactured under this specification for the following faces:

   a. 12 inch (300 mm) circular, multi-section
   b. 12 inch (300 mm) arrow, multi-section

2. The maximum weight of a module shall be 4 lbs. (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 weather proof after installation and connection.

5. 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.

6. 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.

7. 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 inch (25.4 mm) in diameter. Additionally, the color shall be written out in 1/2 inch (12.7mm) letters next to the symbol.

(b) Photometric Requirements

4. 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 is per Table 2.

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 catastrophic loss or the failure of one or more LED will not result in the loss of the entire module.

(d) Retrofit Traffic Signal Module

1. The following specification requirements apply to the Retrofit module only. All general specifications apply unless specifically superseded in this section.

2. Retrofit modules can be manufactured under this specification for the following faces:

   a. 12 inch (300 mm) circular, multi-section
   b. 12 inch (300 mm) arrow, multi-section

3. 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.

4. The maximum weight of a Retrofit module shall be 4 lbs. (1.8 kg).

5. 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 weather proof after installation and connection.

6. Electrical conductors for modules, including Retrofit modules, shall be 39.4 inches (1m) in length, with quick disconnect terminals attached.

7. 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 inch (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 inch (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.

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.

LIGHT EMITTING DIODE (LED) PEDESTRIAN SIGNAL HEAD

Effective: May 22, 2002
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881.01TS

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 will be permitted.

Add the following to Article 881.03 of the Standard Specifications:

(a) Pedestrian Countdown Signal Heads.

(1) Pedestrian Countdown Signal Heads shall not be installed at signalized intersections where traffic signals and railroad warning devices are interconnected.

(2) Pedestrian Countdown Signal Heads shall be 16 inch (406mm) x 18 inch (457mm), for 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.

(3) 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 inches (229mm) in height and easily identified from a distance of 120 feet (36.6m).

Materials.
Add the following to Article 1078.02 of the Standard Specifications:

General.

1. 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. Module shall not have user accessible switches or controls for modification of cycle.

2. At power on, the module shall enter a single automatic learning cycle. During the automatic learning cycle, the countdown display shall remain dark.

3. 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.

4. 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.

5. If the controller preempts during the flashing Upraised Hand, the countdown will continue to count down without interruption.

6. The next cycle, following the preemption event, shall use the correct, initially programmed values.

7. 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.

8. The digits will go dark for one pedestrian cycle after loss of power of more than 1.5 seconds.

9. The countdown numerals shall be two (2) "7 segment" digits forming the time display utilizing two rows of LEDs.

10. 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.

11. 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.

12. In the event of a power outage, light output from the LED modules shall cease instantaneously.

13. 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.

14. The individual LEDs shall be wired such that a catastrophic loss or the failure of one or more LED will not result in the loss of the entire module.

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.

REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT

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 City shall be delivered by the Contractor to the City’s Public Works facility. The Contractor shall contact the City to schedule an appointment to deliver the equipment. No equipment will be accepted without a prior appointment. All equipment shall be delivered within 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 City, 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 City. The Contractor shall be responsible for the condition of the traffic signal equipment from the time Contractor takes maintenance of the signal installation until delivery to the City.

The Contractor shall safely store and arrange for pick up or delivery of all equipment to be returned to the City. The Contractor shall package the equipment and provide all necessary documentation as stated above.

Traffic signal equipment which is lost or not returned to the City for any reason shall be replaced with new equipment meeting the requirements of these Specifications at no cost to the contract.

ACCESSIBLE PEDESTRIAN SIGNALS

Description.
This work shall consist of furnishing and installing pedestrian push button accessible pedestrian signals (APS) type. Each APS shall consist of an interactive vibrotactile pedestrian pushbutton with speaker, an informational sign, a light emitting diode (LED) indicator light, a solid state electronic control board, a power supply, wiring, and mounting hardware. The APS shall meet the requirements of the MUTCD and Sections 801 and 888 of the Standard Specifications, except as modified herein.

The APS system shall have a control unit located in the traffic signal cabinet. Systems with control units in the pedestrian head shall not be allowed.

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 with volume settings a maximum of 5 dBA louder than ambient sound.

If two accessible pedestrian pushbuttons are placed less than 10 ft (3 m) apart or placed on the same pole, the audible walk indication shall be a speech walk message.

A clear, verbal message shall be used to communicate the pedestrian walk interval. This message shall sound throughout the WALK interval only. The verbal message shall be modeled after: "Street Name." Walk Sign is on to cross "Street Name." No other messages shall be used to denote the WALK interval.

Where two accessible pedestrian pushbuttons are separated by at least 10 ft (3 m), the walk indication shall be an audible percussive tone. It shall repeat at 8 to 10 ticks per second with a dominant frequency of 880 Hz.

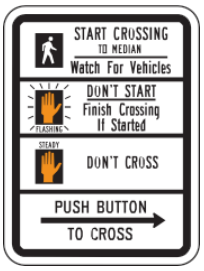
Automatic volume adjustments in response to ambient traffic sound level shall be provided up to a maximum volume of 100 dBA. Locator tone and verbal messages shall be no more than 5 dB louder than ambient sound.

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).

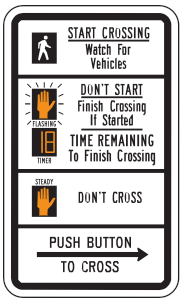
A red LED indicator shall be located on or near the pushbutton which, when activated, acknowledges the pedestrians request to cross the street. The recorded messages and roadway designations shall be confirmed with the engineer and included with submitted product data.

Signage.
A sign shall be located immediately above the pedestrian pushbutton and parallel to the crosswalk controlled by the pushbutton. The sign shall be one of the following standard MUTCD designs: R10-3b, R10-3d, or R10-3e.

R10-3b



R10-3d



R10-3e

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.

Vibrotactile Feature.
The pushbutton shall pulse when depressed and shall vibrate continuously throughout the WALK interval.

Training.
The Contractor shall provide APS onsite training for Department personnel and person(s) or group that requested the installation of the APS. APS features and operation shall be demonstrated during the training. The training shall be presented by the APS equipment supplier. Time, date, and location of the training and demonstration shall be coordinated with the Engineer.

Basis of Payment.
This work will be paid for at the contract unit price each for a pedestrian push button, ACCESSIBLE PEDESTRIAN SIGNALS type and shall include furnishing, installation, mounting hardware, message programming, and training.

CONNECTION TO EXISTING STRUCTURE

Description
The work shall consist of machine core drilling the size specified of a sanitary manhole in place and installing a manufactured rubber boot. This work shall be performed at locations shown on the plans or where directed by the Engineer.

In addition, the bench shall be cored or otherwise modified to provide a smooth flow channel in the existing manhole. Additional fillets shall be poured if necessary. The outside of the manhole where the boot is installed shall be grouted with non-shrink grout. No grout shall be placed inside the sanitary manhole.

If connection is made to a lined manhole, care must be taken, and any protrusion must be sealed with Sikadur 31 (hi-mod gel) 6” onto existing liner.

Basis of Payment
This work shall be paid for at the contract unit price per each for CONNECTION TO EXISTING STRUCTURE and be full compensation for core drilling, incidental excavation, installation of pipe, fittings, granular backfill, bedding, and all labor, materials, equipment and incidentals as shown on the plans and as specified herein for a working system.

SANITARY CLEANOUT

Description
This work shall consist of installing SIX (6) INCH sanitary cleanouts at the locations indicated on the plans. The items shall include all the labor, materials and equipment necessary for a complete installation in accordance with the Section 563 of the Standard Specifications (for Road and Bridge Construction), all applicable sections of the current edition of the Standard Specifications for Water and Sewer Main Construction in Illinois, and the City of Naperville detail for Sanitary Sewer Cleanout.

Materials
The pipe and fittings shall consist of the same materials as specified in the SANITARY SEWER section of these special provisions. The work shall consist of pipe removal, installation of a 6 inch sanitary tee fitting, two flexible couplings, pipe spools between the couplings and the tee, sufficient 6” pipe riser to reach the required finished grade, cleanout box frame and cover, and a threaded plug for the tag end of the cleanout tee. The clean out cover shall be flush with the finished grade of the surrounding ground.

Method of Measurement
The methods of measurement for shall be per EACH – SANITARY CLEANOUT that is installed.

Basis of Payment
This work shall be paid for at the contract unit price per each for SANITARY CLEANOUT and be full compensation for sidewalk removal, excavation, cutting and removal of existing sewer service, installation of all materials, granular backfill, bedding, and all labor, materials, equipment and incidentals as shown on the plans and as specified herein for a working system.

CONNECTION TO EXISTING WATER MAIN (NON-PRESSURE)

Description
This work shall consist of connecting newly installed water main to existing water main with the use of pressure taps, cut-in sleeves, tees, crosses or other fittings as needed at the locations shown on the plans or as directed by the engineer. This work shall include the preparation, excavation, backfill and installation of all fittings, tees, retainer glands, thrust blocking, flushing, chlorinating and testing necessary to provide a complete connection.

Where existing water mains are to be abandoned in place, the main shall be cut and capped in the general area indicated in the plans. The portion of the water main that is to remain live shall be capped with a mechanical plug and restrained with concrete thrust blocks. The portion of the water main that is to be abandoned in place shall be capped with a mechanical plug. Cutting, capping, and abandoning the existing water main will not be paid for separately, but shall be included in the cost of Water Main Connections.

The use of stainless steel or ductile iron tapping sleeves will not be permitted. Work to remove a portion of 12” ductile iron pipe and install the tee will not be paid for separately, but shall be considered included in the cost of this item.

For flushing purposes, Contractor shall assume a 2” corporation stop and 2” copper service whip will be installed at each connection point. The final location of these taps will be determined during construction. Whips shall be removed prior to final acceptance. This work will not be paid for separately, but shall be considered included in the cost of each water main connection.

Basis of Payment
The work will be paid for at the contract unit price per EACH for CONNECTION TO EXISTING WATER MAIN (NON-PRESSURE) of the diameter specified. Payment shall be full compensation for excavation, removal of spoils, 2” copper whip, blocking, bedding, trench backfill, and all labor materials, equipment and incidentals as shown on the plans and as specified herein.

PVC CASING PIPE, 18”

Description: This work shall be in accordance with the “Standard Specifications for Water and Sewer Main Construction in Illinois”, City of Naperville requirements, the special provision for DUCTILE IRON WATER MAIN and the detail(s) provided in the plans, except as modified herein.

The work shall consist of installing water main quality PVC casing pipes around water mains where indicated on plans as “PVC CASING PIPE” to meet water and sewer separation requirements as shown on Standard Drawings No. 22 and 23 in the “Standard Specifications for water and Sewer Main Construction in Illinois”, complete in place by open cut method.

Basis of Payment: This work will be paid for at the contract unit price per foot for PVC CASING PIPE, of the diameter specified. This Pay Item does not include the pipe within the casing, which is paid for per the special provision for DUCTILE IRON WATER MAIN.

SANITARY MANHOLE

Description
This work shall consist of furnishing and constructing manhole structures at the locations and to the depths and details shown in the Contract Documents.

Contractor shall be responsible to block or divert flow for short periods during manhole construction. The contractor shall be solely responsible for any backups or other issues that occur due to blocking or diversion. Contractor shall ensure that the mainline sanitary sewer and any sanitary services remain clean and free of debris. If the sanitary sewer or services take on debris during the course of the work, the contractor shall be required to clean said sewer or service as his expense.

Any sawcutting, pavement removal, excavation and other work required to remove the existing manhole and install the new manhole shall be considered as included in the cost of this pay item and will not be paid for separately.

Manholes shall be in accordance with IDOT Section 1042.10, Type A of the inside diameter shown on plans and shall be complete with full height poured concrete invert. Any required exterior drop assemblies shall be incidental to this item. The joints between sections shall have additional bituminous sealing, hand troweled, around the entire exterior of the joint. All manholes shall be reinforced precast concrete construction with steps in accordance with details and diameter shown in the Contract Documents. Contractor shall **field verify** manhole dimensions, diameter, depth, and configuration prior to ordering material.

The manhole frame and lid shall be as shown on the Contract Documents. The watertight frame and lid shall be a Neenah Type R-1916-F, East Jordan Iron Works 1040 ZPT. The word “sanitary” shall be cast on the lid.

Preformed adjusting rings of the proper dimensions needed to mate the frame to the precast structure shall be used. No more than 12” of vertical adjustment may be made using the minimum practical number of individual rings. All rings shall be High Density Polyethylene Plastic (HDPE), Recycled rubber, High Density Expanding Polystyrene, Expanded Polypropylene (EPP). Precast concrete rings, bricks, rocks, shims or concrete blocks will not be allowed. Tapered adjusting rings shall be required when the frame will need to match the slope of the roadway. All castings shall be set flush with pavement or surrounding surface.

A resilient, flexible, non-hardening, preformed bituminous mastic material, Conseal 102 B, shall be used between the cone or top barrel section of the structure and the adjusting rings. A thick bead of non-hardening elastomeric joint sealant conforming to ASTM C-920, Type S, Grade NS, shall be applied between all individual rings and between the adjusting rings and the frame. The sealant or mastic material shall be applied in such a manner that no surface water or ground water inflow can enter the structure.

Frame adjustments shall be completed in accordance with Sections 602 and 603 of the Standard Specifications for Road and Bridge Construction, prepared by the Illinois Department of Transportation, latest edition, except as noted herein.
Upon completion of manhole installation, all manholes shall be tested for leakage by vacuum testing. A vacuum of 10" (254 mm) Hg shall be place on the manhole and the time shall be measured for the vacuum to drop to 9" (229 mm) Hg. The vacuum shall not drop below 9" (229 mm) Hg for the following time periods for each size of manhole:

a) 48-inch diameter - 60 seconds
b) 60-inch diameter - 75 seconds

The manhole frame and adjusting rings shall be in place when testing. Any manholes that fail the test shall be sealed and re-tested until acceptable.

Applicable Standard Specifications
The work and materials shall conform to applicable provisions of the "Standard Specifications for Water and Sewer Main Construction in Illinois" and in accordance to the details shown on the plans.

Basis of Payment
This work will be paid at the contract unit price each for SANITARY MANHOLE, of the inside diameter specified, which price shall be full compensation for all work and materials, excavation, removal of spoils, connections to existing pipes, bedding, backfill, vacuum testing, and any other incidental items required for a completed structure including the frame and closed lid.

WATER SERVICE INSTALL, 1" COMPLETE

This work shall comply with the special provision for WATER SERVICE REPLACEMENT, 1.5" LONG except as follows.

The water service shall be 1" and shall be installed as an open cut due to the close proximity of the main to the service connection. The new service shall connect to the existing curb stop of the irrigation b-box.

Basis of Payment.
Work will be paid for at the contract unit price per each for WATER SERVICE INSTALL, 1" COMPLETE. Payment shall be full compensation for excavation, tapping of the proposed water main, copper service line, curb box, reconnecting to the existing service at the curb stop, removal of spoils, trench backfill and all labor materials, equipment and incidentals as shown on the plans and as specified herein to provide a working system.

FURNISHING, INSTALLING AND STRESSING POST-TENSIONING STRANDS

Description: This work consists of furnishing, installing, stressing, and grouting the post-tensioning steel in accordance with the details shown on the plans, as specified herein, or as directed by the Engineer.

A. This item will also include the furnishing and installing of any appurtenant items necessary for the particular post-tensioning system used, including but not limited to, anchorage assemblies, additional reinforcing bars required to resist stresses caused by anchorage assemblies, ducts, vents, inlets, outlets, and grout used for pressure grouting of the ducts.

Contractor Proposed Options: The Contractor may propose for consideration certain variations from the post-tensioning systems shown in the plans. However, any post-tensioning system proposed by the Contractor shall comply with the following requirements:

A. Materials and devices used in the post-tension system shall conform to the requirements of this Specification.
B. The net compressive stress in the concrete after all losses is at least as large as that provided by the system shown on the Plans.
C. The distribution of individual tendons at each section generally conforms to the distribution shown on the Plans.
D. The ultimate strength of the structure with the proposed post-tensioning systems shall meet the requirements of Section 5 of the 2017 AASHTO LRFD Bridge Design Specifications, 8th Edition; and shall be equivalent to the ultimate strength provided by the original design.
E. Stresses in the concrete and post-tensioning steel at all sections and at all stages of construction meet the requirements of the Design Criteria noted on the Plans.
F. Compliance with all the provisions of the Design Criteria, as noted on the plans.
G. The Contractor fully redesigns and details, as required, all the elements where the alternate post-tensioning system is proposed to be used.
H. The Contractor shall submit complete shop drawings including the post-tensioning scheme and system, reinforcing steel, concrete cover, and design calculations (including short- and long-term post-tension losses) for the Engineer's review.
I. AASHTO M203 (ASTM A416) Grade 270, low-relaxation 0.6-inch diameter strand and 0.5-inch diameter strand may be substituted for each other on an equal force basis within any tendon size shown by the designer.
J. Except for local zone reinforcement, do not substitute, modify, or delete any components of an approved PT system. Inclusion of all possible subcomponents is required for PT system and component testing; however, subcomponents of approved systems may be eliminated from final installations based on project-specific requirements, provided all component-to-component interface hardware are included as necessary to maintain connections and PT system integrity.
K. Install the PT tendon (e.g., strands, wires, or bars) in ducts. Stress the PT tendon to a predetermined load and anchor ends directly against hardened concrete. After anchoring the PT tendon, install permanent anchorage caps, inject ducts with filler to completely fill voids, and install protection at anchorages.
L. Submit all required documents in accordance with this Section to the Engineer for review

and written approval.

Submittals: All shop drawings and calculations shall be signed and sealed by an Illinois Licensed Structural Engineer. The Contractor shall submit detailed shop drawings including but not limited to the following:

A. A complete description of, and details covering, each of the post-tensioning systems to be used for permanent and temporary tendons. This shall include:
    1. Designation of the specific post-tensioning steel, anchorage devices, bar couplers, duct material and accessory items.
    2. Properties of each of the components of the post-tensioning system.
    3. Details covering assembly of each type of post-tensioning tendon.
    4. Equipment to be used in the post-tensioning sequence.
    5. Procedure and sequence of operations for post-tensioning and securing tendons.
    6. Procedure for releasing the post-tensioning steel elements.
    7. Parameters to be used to calculate the typical tendon force, such as, expected friction coefficients, anchor set, wobble coefficient and post- tension steel relaxation curves.

B. A table detailing the post-tensioning jacking sequence, jacking forces and initial elongations of each tendon at each stage of erection for all post-tensioning.

C. Complete details of the anchorage system for post-tensioning including certified copies of the reports covering tests performed on post-tension anchorage devices as required in the following Materials Section B, and details for any reinforcing steel needed due to stresses imposed in the concrete by anchorage plates.

D. For the operation of grouting post-tensioning tendons, the materials and proportions for grout, details of equipment for mixing and placing grout and methods of mixing and placing grout.

E. Calculations to substantiate the post-tensioning system and procedures to be use including stress-strain curves typical of the post-tensioning steel to be furnished, required jacking forces, elongations of tendons during tensioning, and seating losses. These calculations shall show a typical tendon force after applying the expected friction and wobble coefficients, and anticipated losses including anchor set losses. Elongation calculations shall be revised when necessary to properly reflect the modulus of elasticity and nominal area as furnished by the Manufacturer for the lot of steel being tensioned. Elongation calculations shall also be adjusted, as necessary, based upon the actual coefficient of friction measured and calculated by an in-place friction test.

F. Complete details of the apparatus and method to be used by the Contractor for the test required by the following Materials Sections F.1 and F.2, including the proposed tendons to be tested.

Materials: The materials to be incorporated into work covered by this Section shall conform to the requirements set out herein. Approval of any material by the Engineer will not preclude subsequent rejection if material is damaged or otherwise found to not meet the requirements of this Section.

A. Post-tensioning Strand. Unless otherwise noted on the plans, strand shall be uncoated, Grade 270 (1860), low-relaxation seven wire strand conforming to the requirements of AASHTO M203 (ASTM A416).

B. Post-tension Anchorages. All post-tensioning steel shall be secured at the ends by means of permanent type anchoring devices. Post-tension anchorages shall develop at least 95 percent of the minimum specified ultimate tensile strength of the post-- tensioning steel.
Testing of anchorage devices shall be performed in accordance with Article 10.3.2.3 of the *AASHTO LRFD Bridge Construction Specifications, 4th Edition, 2017* using samples representing the type of post-tensioning steel, bursting steel grade and configuration, and concrete strength to be used on the project. The test specimen shall be assembled in an unbonded state and, in testing, the anticipated anchor set shall not be exceeded. Certified copies of test results for the anchorage system shall be supplied to the Engineer. The anchorage system shall be so arranged that the post-tensioning force in the tendon may be verified prior to the removal of the stressing equipment.

For tendon anchorages, the design and furnishing of any local zone reinforcement which is needed to resist bursting and splitting stresses imposed on the concrete by the proposed anchorage system shall be the responsibility of the Contractor at his expense. It shall be the responsibility of the manufacturer to review and approve any local zone reinforcement detailed on the Plans for suitability with the proposed anchorages and concrete strength to be used on the project.

Post-tension anchorage devices shall effectively distribute post-tensioning loads to the concrete and shall conform to the requirements of Article 10.3.2 of the AASHTO LRFD Bridge Construction Specifications.

C. Ducts. All duct material shall be sufficiently rigid to withstand loads imposed during placing of concrete and internal pressure during grouting while maintaining its shape, remaining in proper alignment, and remaining watertight.
The duct system, including splices and joints, shall be effectively sealed, and bonded to prevent entrance of cement paste or water into the system and shall effectively contain pressurized grout during grouting of the tendon. The duct system shall also be capable of withstanding water pressure during flushing of a duct in the event the grouting operation is aborted.

Coupling and transition fittings for ducts shall be polyethylene or polypropylene and

shall have sufficient strength to prevent distortion or displacement of the ducts during concrete placement.

The interior diameter of ducts shall be large enough to cause the duct to have an interior area not less than 2.5 times the net area of the post-tension steel.

Material Properties. Except as otherwise noted on the Plans, the type of duct material used shall be corrugated plastic polyethylene or polypropylene duct.

1. Corrugated Polyethylene Plastic. Plastic duct shall be made of high- density polyethylene material and shall conform to the requirements of ASTM D3350-98a, cell classification range 424432C to 335534C.

2. Corrugated Polypropylene Plastic. Plastic duct shall be made of high- density polypropylene conforming to ASTM D4101, cell classification range PP21OB43542 to PP210865542.

3. The plastic material shall not react with concrete or enhance corrosion of post-tension steel and shall be free of water-soluble chloride. Corrugated plastic duct shall be corrugated with a spiral having a pitch not less than 1/10 of the radius of the duct. The minimum wall thickness shall be 0.06 inches (1.5 mm) ± 0.01 inches (0.25 mm).
   Corrugated plastic duct shall be designed so that a force equal to 40 percent of the ultimate tensile strength of the tendon will be transferred through the duct into the surrounding concrete in a length of 2'-6" (0.76 meters). Twelve static pull out tests shall be conducted to determine compliance of a duct with the force transfer requirement. If ten of these tests exceed the specified force transfer, the duct is acceptable. The Contractor shall provide to the Engineer certified test reports verifying that the duct meets specification requirements regarding force transfer.

4. Minimum Radius of Curvature. Tendon ducts shall preferably be installed with a radius of curvature of 20 feet (6.1 meters) or more. Ducts with sharper curvature down to a minimum of 10 feet (3 meters) shall have confinement reinforcement detailed to tie the duct into the concrete. Duct curvature with radii less than 10 feet (3 meters) may be approved by the Engineer based on review of test data. The minimum radius for corrugated polyethylene or polypropylene duct shall be 30 feet (9.1 meters). The confinement reinforcement shall be proportioned in accordance with Section 0 16.3 of the *AASHTO Guide Specifications for Design and Construction of Segmental Concrete Bridges, 2nd Edition.*

D. Sampling and Testing. All testing shall be done in accordance with ASTM Specifications.
   The following samples of materials and devices selected at locations designated by the Engineer shall be furnished by the Contractor at his expense.
   1. Three samples of 7 foot (2.1 meter) long post tensioning wire or bar for each size from each heat number or production lot.

2. Three samples of 5 foot (1.5 meter) long post tensioning strand for each size from each heat number or production lot.
3. One unit of each post-tension anchorage to be used on the project.
   Samples shall be furnished at least one month in advance of the time they are to be incorporated into the work.

   The Engineer reserves the right to reject for use any material or device which is obviously defective or was damaged after testing.

E. Manufacturer's Lots. The manufacturer of post-tensioning steel, post-tension anchorages and bar couplers shall assign an individual number to each Lot of strand, wire, bar, or devices at the time of manufacture. Each reel, coil, bundle, or package shipped to the project shall be identified by tag or other acceptable means as to Manufacturer's Lot number. The Contractor shall be responsible for establishing and maintaining a procedure by which all post-tensioning materials and devices can be continuously identified with the Manufacturer's Lot number. Items which at any time cannot be positively identified as to Lot number shall not be incorporated into the work. Low-relaxation strand shall be clearly identified as required by AASHTO M203 (ASTM A416). Any strand not so identified will not be acceptable.

   The Contractor shall furnish manufacturer's certified reports covering the tests required by this Specification. A certified test report stating the guaranteed minimum ultimate tensile, yield strength, elongation and composition shall be furnished for each lot of post-tensioning steel. When requested, typical stress-strain curves for post-tensioning steel shall be furnished. A certified test report stating strength when tested using the type post-tensioning steel to be used in the work shall be furnished for each Lot of post-tension anchorage devices.

F. Testing of Post-tensioning Tendons by the Contractor.
   1. General. The Contractor shall perform certain testing of post-tensioning tendons as specified herein.

   2. In-place Friction Test of Tendons. To accurately determining the friction loss in stressing draped tendons, prior to stressing any draped tendons, the Contractor shall test, in place, a representative draped tendon of each size and type as selected by the Engineer. If deemed necessary by the Engineer to accurately establish friction loss, the Contractor shall perform tests on additional tendons selected by the Engineer.

      The test procedure shall consist of stressing the tendon at an anchor assembly with load cells at the dead end and jacking end. The test specimen shall be tensioned to 80 percent of ultimate in 10 increments. For each increment, the gauge pressure, elongation and load cell forces shall be recorded. The data shall be furnished to the Engineer. The theoretical elongations and post-tensioning forces shown on the post-tensioning shop drawings shall be re-evaluated by the Contractor using the results of the tests and corrected, as necessary. Revisions to the theoretical elongations shall be submitted to the Engineer for evaluation and approval. The apparatus and methods used to

perform the tests shall be proposed by the Contractor and is subject to the approval of the Engineer.

G. Grout for Tendons.

1. General. The grout to be used to fill the voids in tendons shall consist of portland cement, water and admixtures which impart low water content, flowability, minimum bleeding, water retention, and set retarding properties (if needed) to the grout. A pre-packaged commercial cement-based grout mixture meeting the requirements of this Specification is recommended. A non-commercial grout may be used subject to approval by the Engineer.

2. Grout Components. Portland cement shall conform to the requirements of AASHTO M85 (ASTM C150) Type I or Type II. The cement shall be fresh and not contain lumps or other indication of hydration or "pack set". The Contractor shall furnish, for each shipment of cement, a manufacturer's report stating the results of tests made on samples of the material taken during production or transfer and certifying that the applicable requirements of AASHTO M85 (ASTM C150) have been met.
   Mineral admixtures may be allowed if improved properties can be demonstrated in testing.
   Fly Ash shall conform to ASTM C618 and have a maximum dosage of 20 percent of the cementitious content.
   Ground granulated blast furnace slag shall conform to ASTM C989 and have a maximum dosage of 50 percent of the cementitious content.
   Silica Fume shall conform to ASTM C1240 and have a maximum dosage of 8 percent of the cementitious.
   The water used in the grout shall be in accordance with Section 1002 of the Standard Specifications.
   Unless specifically noted otherwise on the plans, use of admixtures shall be at the discretion of the Contractor. Admixtures shall conform with ASTM C494, Types D, E, F or G. Air entraining admixtures (if used) shall conform to ASTM C260. Admixtures when incorporated into the grout mixture, shall impart the properties of low water content, good flowability, water retention, and, when necessary, increase in setting time.
   Admixtures containing chlorides (as CL more than 0.5 percent by weight of admixture per sack of cement), sulphites, fluorides, nitrates or nitrites shall not be used.
   Anti-bleeding admixtures or pumping aids (admixtures) may be permitted if it is demonstrated by testing that improved properties are achieved. Expansion causing admixtures, such as aluminum or coke breeze, shall not be used.

   When a grout-expanding admixture is required, or is used at the Contractor's option, it shall be well dispersed through the other admixtures. The amount of admixture to obtain a desired amount of expansion shall be determined by tests. If the source of manufacture or brand of either admixture or cement changes after testing, new tests shall be conducted to determine proper proportions.
   All admixtures shall be used in accordance with the instructions of the

Manufacturer. The date of manufacture and expiration, if any, shall be clearly stamped on each container. No admixture shall be used for which the shelf life recommended by the manufacturer has expired.
Aggregates (if used) shall conform to ASTM C33 and non-reactive per Appendix ASTM C33. The aggregate shall be fine enough to not restrict movement of the grout through the duct.

3. Grout Properties. The Contractor shall determine the exact kinds of admixtures and proportions of materials to be used to meet the requirements set out in this specification, from prior documented experience with similar materials, equipment and placing conditions, will result in a grout which does not bleed and can be effectively placed. The quantity of water in the grout shall be as low as possible, consistent with the fluidity needed for placing.
   Prior to beginning grouting operations, the Contractor shall furnish to the Engineer, the results of tests performed by a laboratory approved by the Engineer demonstrating that the grout mixture he proposes to use meets the requirements of this Specification. This information shall include a graph relating compressive strength of the grout to age, covering ages from 24 hours to 28 days.
   Pre-packaged grouts shall be mixed and used in complete units only.
   Most of the water shall be added to the mixer followed by cement and the admixture. The grout shall be mixed in mechanical mixing equipment capable of continuous mixing which will produce a grout free of lumps and undispersed cement. Prebagged grout shall be mixed in complete units. Retempering the grout will not be permitted. Grout shall be continuously agitated until it is pumped.
   The grout shall be placed within 30 minutes following the introduction of the cement to the grout.

4. Required Properties. Grout shall have the following physical properties:

Property	Test Value	Test Method
Water-Cement Ratio	Max. 0.45	--
Compressive Strength	Min. 3000 psi (21MPa) @ 7 days and 5000 psi (34.5 MPa) @ 28 days (average of 3 cubes)	ASTM C109*
Initial Set of Grout	Min. 90 minutes	ASTM C266*
Bleeding	0 after 3 hours	ASTM C940
Wick Induced Bleed Test	0% after 4 hours	ASTM C940**
Volume Change	0 @ 24 hours and 0.3% maximum @ 28 days	ASTM C1090
Efflux Time from Flow Cone	Min. 11 seconds***	ASTM C939

*The test specimen shall be prepared using the materials and, in the proportions, which are to be used in production of grout.

**Modified ASTM C940 (a) Condition dry ingredients, mixing water, post-tensioning strand and test apparatus overnight at 40 to S0°F (5 to 10°C). {b) Insert 800-ml of mixed condition grout with conditioned water into the 1,000-ml graduate cylinder. Mark the level of the top of the grout. (c) Insert completely a 20 in. (0.5 m) length of conditioned, cleaned, ASTM A416 7-wire strand [0.5 in. (12.7 mm) diameter] into the 1,000-ml graduate. Center and fasten the strand so it remains essentially parallel to the vertical axis of the cylinder. Mark the level of the top of the grout. (d) Measure the level of the bleed water every 15 min. for the first 1 hour and then hourly afterward for 4 hrs. (e) Calculate the bleed water, if any, and the resulting expansion per the procedures outlined in ASTM C940, with the quantity of bleed water expressed as a % of the initial grout volume.·

*** The flow cone test shall not apply to grout which contains an admixture imparting a thixotropic consistency to the grout.

Construction Requirements:

A. Post-Tensioning Technician. The post-tensioning supplier shall furnish a qualified technician to the job site as an advisor in the appropriate use of the post-tensioning systems. The technician in charge of supervising the post tensioning shall be either a PTI Certified Level 2 Multistrand & Grouted PT Specialist and shall furnish proof of PTI or equivalent certification or qualification for approval by the Engineer. The technician is to be employed by the post-tensioning supplier and included in the cost of the post-tensioning. The technician shall be on site to inspect the installed post-tensioning components prior to each pour and supervise stressing operations.

B. Protection of Post-tensioning Steel. All post-tensioning steel shall always be protected against physical damage from manufacture to grouting or encasing in concrete. Post-tensioning steel that has sustained physical damage at any time shall be rejected. Any reel that is found to contain broken wires shall be rejected and the reel replaced.
Post-tensioning steel shall be packaged in containers or shipping forms for protection of the steel against physical damage and corrosion during shipping and storage. A corrosion inhibitor, which prevents rust or other results of corrosion, shall be placed in the package or form, or shall be incorporated in a corrosion inhibitor carrier type packaging material. Only after submittal to and approval by the Engineer, may a corrosion inhibitor be applied directly to the steel. The corrosion inhibitor shall have no deleterious effect on the steel or concrete or bond strength of steel to concrete. The inhibitor shall be water-soluble. The corrosion inhibitor, the amount and time of initial application and the frequency of reapplication shall be subject to the approval of the Engineer. Packaging or forms damaged from any cause shall be immediately replaced or restored to original condition.
The post-tensioning steel shall be stored in a manner which will always prevent the packing material from becoming saturated with water and allow a free flow of air around the packages. If the useful life of the corrosion inhibitor in the package expires, it shall immediately be rejuvenated or replaced.
At the time the post-tensioning steel is installed in the work, it shall be free from loose rust, loose mill scale, dirt, paint, oil, grease, or other deleterious material. Removal of

tightly adhering rust or mill scale will not be required. Post-tensioning steel which has experienced rusting to the extent that it exhibits pits visible to the naked eye shall not be used in the work.

The shipping package or form shall be clearly marked with the heat number and with statement that the package contains high-strength post-tensioning steel, and care is to be used in handling. The type and amount of corrosion inhibitor used, the date when placed, safety orders and instructions for use shall also be marked on the package or form.

When the plans provide for post-tensioning steel to be installed in one unit with a length of post-tensioning steel left projecting to be threaded into another unit during erection, all of the post-tensioning shall be protected from corrosion from immediately after it is installed in the first unit until the tendon is grouted in the second unit as provided below.

All anchorages, end fittings, couplers, and exposed tendons that will not be encased in concrete or grout in the completed work shall be permanently protected against corrosion.

When corrosion protection of in-place post-tensioning steel is required, a corrosion inhibitor that prevents rust or other results of corrosion shall be applied directly to the post-tensioning steel. The corrosion inhibitor shall have no deleterious effect on the post-tensioning steel or grout or bonding of the post-tensioning steel to the grout.

The inhibitor shall be water soluble. The corrosion inhibitor, the amount and time of initial application, and the frequency of reapplication shall be subject to the Engineer's approval.

The corrosion inhibitor shall consist of a vapor phase inhibitor (VPI) powder conforming to the provisions of Federal Specification MIL-P-3420F-87 or as otherwise approved by the Engineer.

C. Placement of Ducts. The ducts shall be rigidly supported at the proper locations in the forms by ties to reinforcing steel that are adequate to prevent displacement during concrete placement. Supplementary support bars shall be used where needed to maintain proper alignment of the duct. Hold-down ties to the forms shall be used when the buoyancy of the ducts in the fluid concrete would lift the reinforcing steel.

Internal ducts shall be rigidly supported by ties to reinforcing steel at a maximum spacing of 2 feet (600 mm).

Any additional mild reinforcing required to support post-tensioning ducts shall be supplied by the Contractor at no expense to the Engineer. The tolerance on the location of the tendons shall be plus or minus ¼ inch (6 mm) at any point.

Joints between sections of duct shall be coupled with positive connections that do not result in angle changes at the joints. The connections shall be sealed with heat- shrink wrapping to prevent the intrusion of cement paste.

After placing of ducts and reinforcement and forming is complete, an inspection shall be made to locate possible duct damage. All unintentional holes or openings in the duct shall be repaired prior to concrete placing.

Grout openings and vents shall be securely anchored to the duct and either to the forms or to reinforcing steel to prevent displacement during concrete-placing operations.

After installation in the forms, the ends of ducts shall always be sealed to prevent entry of water and debris.

All ducts or anchorage assemblies for permanent post-tensioning shall be provided with vent pipes or other suitable connections at each end and at each side of couplers for the injection of grout after post-tensioning. Ducts shall be vented at the high points of the post-tensioning steel profile when there is more than a 6 inches (150 mm) variation in the vertical position of the duct and the tendon length exceeds 400 feet (122 m). Where freezing conditions can be anticipated prior to grouting, drains shall be installed at the low points of all tendons to prevent the accumulation of water.
Vents shall be ½ inch (13 mm) minimum diameter plastic pipe. All connections to ducts shall be made with metallic or plastic structural fasteners. Waterproof tape shall be used at all connections including vent and grouting pipes. Plastic components, if selected and approved, shall not react with the concrete, or enhance corrosion of the post-tensioning steel, and shall be free of water-soluble chlorides.

D. Tolerances. The tolerance on the installed location of the tendons shall be plus or minus ¼ inch (6-mm) at any point.
The entrance and exit angles of tendon paths at anchorages and/or at faces of concrete shall be within ±3 degrees of desired angle measured in any direction.
Angle changes at duct joints shall not be greater than ±3 degrees in any direction.
Anchorages shall be located within ±¼ inch (±6 mm) of desired position laterally and ±1 inch (±25 mm) along the tendon except that minimum cover requirements to ends of cut off tendons and anchor components must be maintained.
Position anchorage confinement reinforcement in the form of spirals, multiple U shaped bars or links, to start with ½ inch (13 mm) of the back of the main anchor plate, providing the anchorage is to be encased or sealed later in the construction, and properly centered around the duct.
If conflicts exist between reinforcement and a PT duct, position of duct prevails. Adjust local reinforcement with the Engineer's written approval.

E. Placement of Post-tensioning Steel. Prior to installation of ducts, the Contractor shall determine the most suitable method of feeding post-tensioning steel into the ducts. Long, draped tendons may necessitate preassembly of the post-tensioning steel in the ducts prior to duct placement or feeding of post-tensioning steel into the in-place ducts prior to draping of the tendon and casting of the concrete.
All post-tensioning steel preassembled in ducts and installed prior to the placement of concrete shall be accurately placed and held in position during concrete placement. When the post-tensioning steel is installed after the concrete has been placed, the Contractor shall demonstrate by submittal that the ducts are free of water and debris immediately prior to installation of the steel. The total number of strands in an individual tendon may be pulled into the duct as a unit, or the individual strand may be pulled or pushed through the duct. Anchorage devices or block-out templates for anchorages shall be set and held so that their axis coincides with the axis of the tendon and anchor plates are normal in all directions to the tendon.

F. Protection of Steel After Installation. Post-tensioning steel installed in members prior to placing and curing of the concrete, or installed in the duct but not grouted within the time limit specified below, shall be continuously protected against rust or other corrosion by means of a corrosion inhibitor placed in the ducts or directly applied to the steel. The post-tensioning steel shall be so protected until grouted or encased in

concrete. Post-tensioning steel installed and tensioned in members after placing and curing of the concrete and grouted within the time limit specified below will not require the use of a corrosion inhibitor described herein, and rust that may form during the interval between tendon installation and grouting will not be cause for rejection of the steel.

G. The permissible interval between tendon installation and grouting without the use of a corrosion inhibitor for various exposure conditions shall be taken as follows:

Very Damp Atmosphere or over saltwater (Humidity > 70 percent)	7 days
Moderate Atmosphere (Humidity from 40 percent to 70 percent)	15 days
Very Dry Atmosphere (Humidity < 40 percent)	20 days

H. After tendons are placed in ducts, the openings at the ends of the ducts shall be sealed to prevent entry of moisture.

When steam curing is used, unless anchorage systems mandate its installation, steel for post-tensioning shall not be installed until the steam curing is completed.

Such tendons shall be protected against corrosion by means of a corrosion inhibitor placed in the ducts or on the steel or shall be stressed and grouted within seven days after steam curing.

Whenever electric welding is performed on or near members containing post-tensioning steel, the welding ground shall be attached directly to the steel being welded. All post-tensioning steel and hardware shall be protected from weld spatter or other damage.

I. Placement of Anchorage Hardware. The Contractor is responsible for the proper placement of all materials according to the design documents of the engineer of record and the requirements stipulated by the anchorage device supplier. The Contractor shall exercise all due care and attention in the placement of anchorage hardware, reinforcement, concrete, and consolidation of concrete in anchorage zones. Modifications to the local zone details specified under provisions of Article 5.8.4.4, 2017 AASHTO LRFD Bridge Design Specifications, 8th Edition and by testing as specified herein shall be approved by both the engineer of record and the anchorage device supplier.

J. Post-tensioning Operations.
   1. Stress in Tendons. The design of the structure is based on the assumed friction and wobble coefficient shown in the plans.
      The post-tensioning forces shown are theoretical and do not include losses in the system or thermal affects.

All post-tensioning shall be tensioned by means of calibrated hydraulic jacks with load measuring devices so that the force of the post-tensioning steel shall not be less than the value shown on the approved shop drawings. The maximum temporary tensile stress (jacking stress) in post-tensioning steel shall not exceed 80 percent of the specific minimum ultimate tensile strength of the post-tensioning steel. The post-tensioning steel shall be anchored at initial stresses in a way that will result in the ultimate retention of permanent forces of not less than those shown on the approved shop drawings, but in no case shall the initial stress at the anchorage, after anchor set, exceed 70 percent of the specified minimum ultimate tensile strength of the post-tensioning steel.

Permanent force and permanent stress will be considered as the force and stress remaining in the post-tensioning steel after all losses, including creep and shrinkage of concrete, elastic shortening of concrete, relaxation of steel, thermal affect, losses in post-tensioned post-tensioning steel due to sequence of stressing friction and take-up of anchorages, and all other losses particular to the method or system of post-tensioning have taken place or have been provided for in an approved stressing plan.

When friction shall be reduced, water soluble oil or graphite with no corrosive agents may be used as a lubricant subject to the approval of the Engineer. Lubricants shall be flushed from the duct as soon as possible after stressing is completed by use of water pressure. These ducts shall be flushed again just prior to the grouting operations. Each time the ducts are flushed, they shall be immediately blown dry with oil free air.

2. Stressing Jacks. Each jack used to stress tendons shall be equipped with a pressure gauge having an accurate reading dial at least 6 inch (150 mm) in diameter for determining the jack pressure. The pressure gauge shall be installed at or near the stressing ram. Prior to use for stressing on the project, each jack and its gauge shall be calibrated as a unit by a testing laboratory approved by the Engineer.
   Calibration shall be done with the cylinder extension approximately in the position that it will be when applying the final jacking force and with the jacking assembly in an identical configuration to that which will be used at the job site (i.e., same length hydraulic lines). Certified calibration calculations and a calibration chart, both in English (metric) units of measure, shall be furnished to the Inspector for each jack.

   Recalibration of each jack shall be done at six-month intervals and at other times when requested by the Engineer. At the option of the Contractor, calibrations after the initial laboratory calibration may be accomplished using a master gauge.

   The master gauge shall be calibrated at the same time as the initial calibration of the jacks and shall be part of the unit for each jack. The data recorded during the initial calibrations shall be furnished to the Engineer for use in the field. The

master gauge shall be supplied by the Contractor in a protective waterproof container capable of protecting the calibration of the master gauge during shipment. The Contractor shall provide a quick-attach coupler next to the permanent gauge in the hydraulic lines which enables the quick and easy installation of the master gauge to verify the permanent gauge readings. The master gauge shall remain in the possession of the Engineer for the duration of the project.

If a jack is repaired or modified, the jack shall be recalibrated by the approved testing laboratory. No extra compensation will be allowed for the initial or subsequent jack calibrations or for the use and required calibration of a master gauge.

3. Stressing of Tendons. Post-tensioning forces shall not be applied until the concrete has attained the specified compressive strength as evidenced by tests on representative samples of the concrete. These samples shall be stored under the same conditions as the concrete to accurately represent the curing condition of the concrete in place.
A record of gauge pressures and tendon elongations for each tendon shall be provided by the Contractor for review and approval by the Engineer. Elongations shall be measured to an accuracy of 1/16 inch (1.5 mm). Stressing tails of post-tensioned tendons shall not be cut off until the stressing records have been approved.

   The stress in tendons during tensioning shall be determined by the gauge or load cell ratings and shall be verified with the measured elongations. Calculations of anticipated elongations shall utilize the modulus of elasticity, based on nominal area, as furnished by the Manufacturer for the lot of steel being tensioned, or as determined by a bench test of strands used in the work.

   All tendons shall be tensioned to a preliminary force to eliminate any take-up in the tensioning system before elongation readings are started. This preliminary force shall be 20 percent of the final jacking force. The initial force shall be measured by a dynamometer, or by other approved method, so that its amount can be used as a check against elongation as computed and as measured. Each strand shall be marked prior to final stressing to permit measurement of elongation and to ensure that all anchor wedges set properly. The elongation in the tendon shall be measured before and after release of the jack to determine the actual anchor set.

   It is anticipated that there may be discrepancy in the indicated stress between jack gauge pressure and elongation. In such event, the load used as indicated by the gauge pressure shall produce a slight overstress rather than understress. When a discrepancy between gauge pressure and elongation of more than 5 percent in tendons over 50 feet (15 meters) long or 7 percent in tendons of 50 feet (15 meters) or less in length occurs, the entire operation shall be carefully checked and the source of error determined and corrected before proceeding further. When provisional ducts are provided for addition of

post- tensioning force in the event of an apparent force deficiency in tendons over 50 feet (15 meters) long, the discrepancy between the force indicated by gauge pressure and elongation may be increased to 7 percent before investigation into the source of the error.

If more than two percent of the individual strand wires in a tendon break during the tensioning operation, the tendon shall be removed and replaced (including new set wedges). Previously tensioned strands shall not be allowed unless approved by the Engineer.

Post-tensioning bars used to apply temporary post-tensioning may be reused if they are undamaged.

Post-tensioning steel shall be cut using an abrasive saw within 3/4 inch (20 mm) away from the anchoring device. Flame cutting of post-tensioning steel is not allowed, except for pretensioned post-tensioning steel.

K. Grouting of Tendons.

1. General. After post-tensioning and anchoring of a tendon has been completed and accepted, the annular space between the post-tensioning steel and the duct shall be grouted in accordance with this Specification. In the interval between the post-tensioning and grouting operations, the post-tensioning steel shall be protected as previously specified. Immediately after post-tensioning, all grout vents of each tendon shall be temporarily sealed with plugs to prevent entrance of air or water and left in place until just prior to tendon grouting.
   All grouting operations shall be performed by workers trained and experienced in the tasks required. Grouting shall be performed under the immediate control of a grouting foreperson that has experience and skill in grouting. The Contractor shall name (as a minimum) a primary and backup grouting supervisor and shall furnish proof of experience for each for approval by the Engineer. The named grouting supervisors shall be present whenever grouting occurs.

2. Equipment. The grouting equipment shall include a mixer capable of continuous mechanical mixing that will produce a grout free of lumps and undispersed cement, a grout pump, and standby flushing equipment with water supply. The equipment shall be able to pump the mixed grout in a manner that will comply with all requirements.
   Accessory equipment that will provide for accurate solid and liquid measures shall be provided to batch all materials.

   The pump shall be a positive displacement type and be able to produce an outlet pressure of at least 150 PSI (1.0 MPa). The pump should have seals adequate to prevent introduction of oil, air, or other foreign substance into the grout, and to prevent loss of grout or water.

   A pressure gauge having a full-scale reading of no greater than 300 PSI (2.0

MPa) shall be placed at some point in the grout line between the pump outlet and the duct inlet.

The grouting equipment shall contain a screen having clear openings of 0.132 inches (3.35 mm) maximum size to screen the grout prior to its introduction into the grout pump. If a grout with aggregate or a thixotropic additive is used, a screen opening of 0.187 inches (4.75 mm) is satisfactory. This screen shall be easily accessible for inspection and cleaning.

The grouting equipment shall utilize gravity feed to the pump inlet from a hopper attached to and directly over it. The hopper shall always be kept at least partially full of grout during the pumping operations to prevent air from being drawn into the post-tensioning duct.

Under normal conditions, the grouting equipment shall be capable of continuously grouting the largest tendon on the project in no more than 20 minutes.

Pipes or other suitable devices shall be provided for injection of grout and to serve as vent holes during grouting. The material for these pipes shall be at least 1/2 inch (13 mm) inside diameter and shall be made of a suitable plastic which will not react with the concrete or enhance corrosion of the post-tensioning steel and is free of water-soluble chlorides. These pipes shall be fitted with positive mechanical shut off valves capable of withstanding grouting pressures. All connections between a grout pipe and a duct shall be made with plastic structural fasteners and taped with a waterproof tape as necessary to assure a watertight connection.

For all vertical tendons which have strands as the post-tensioning steel, a standpipe shall be provided at the upper end of the tendon to store bleed water and allow it to be reabsorbed by the grout. This device shall be designed so that the level of grout can be brought to an elevation which will assure that bleeding will at no time cause the level of the grout to drop below the highest point of the upper anchorage device. Provision shall be made to assure that bleed water rises into the standpipe, not into the uppermost part of the tendon and anchorage device.

3. Mixing Grout. The sequence for charging the mixer shall be: add water, start mixer, and add cement. When cement and water are reasonably well mixed, admixtures shall be introduced in accordance with written instructions of the manufacturer of each admixture. The mixing procedures shall prevent admixture from getting caught on blades or sides of drum and from forming gel globules. The mixing procedure may be varied in accordance with the written recommendations of the manufacturer of the admixtures.
   The grout shall be mixed until a uniformly blended mixture is obtained and shall be continuously agitated until it is introduced into the group pump. Batches of grout shall be placed within 30 minutes of mixing. No water shall be added to the grout to modify its consistency after the initial mixing operation is

completed.

4. Preparation of Ducts. All ducts shall be clean and free of deleterious materials that would impair bonding or interfere with grouting procedures.
   Flushing of the ducts with water shall not be allowed unless approved by the Engineer. If flushing is required, the duct shall be dry a minimum of 6 hours prior to the start of grout placement. The ducts shall be dry prior to grouting. If inadvertent water is suspected in the ducts, the ducts shall be blown out with oil-free compressed air until all moisture is removed from the post-tensioning steel and the inside surfaces of the duct.

5. Placing Grout. All grout and high-point vent openings shall be open when grouting starts. Grout shall be allowed to flow from the first vent after the inlet pipe until any entrapped air has been removed and a minimum of one quart (one liter) of grout has exited the vent, at which time the vent should be capped or otherwise closed. Remaining vents shall be closed in sequence in the same manner.
   The pumping pressure at the tendon inlet shall not exceed 250 psi.

   If the actual grouting pressure exceeds the maximum recommended pumping pressure, grout may be injected at any vent that has been or is ready to be capped, if a one-way flow of grout is maintained. If this procedure is used, the vent that is to be used for injection shall be fitted with a positive shutoff.

   When one-way flow of grout cannot be maintained, the grout shall be immediately flushed out of the duct with water.

   Grout shall be pumped through the duct and continuously wasted at the outlet pipe until no visible slugs of water or air are ejected and the efflux time of the ejected grout, as measured by a flow cone test, if used, is not less than that of the injected grout. To ensure that the tendon remains filled with grout, the outlet shall then be closed, and the pumping pressure allowed to build a minimum of 75 psi before the inlet vent is closed. Plugs, caps, or valves thus required shall not be removed or opened until the grout has set.

   After the grout has set, pipes used as injection or vent ports shall be cut off. Plastic pipes shall be cut off flush with the surface of the concrete.

6. Temperature Considerations. Grouting shall not occur when air temperatures are below 32°F or concrete temperatures are below 40°F . Ducts shall be kept free of water to avoid damage due to freezing. The temperature of the concrete or air surrounding the tendon shall be maintained at 35°F or above from the time of grouting until the compressive strength of the grout, as determined from tests on 2 inch cubes cured under the same conditions as the in-place grout, exceeds 800 psi.
   Under hot weather conditions, grouting shall take place early in the morning when daily temperatures are lowest. The grout temperature shall not be above 85°F during mixing or pumping. If necessary, the mixing water and grout shall

be cooled.

7. Field Mock-Up Tests. The Contractor shall perform field mock-up tests of grout procedures. Field trial tests shall be conducted at the same time as the field mock-up tests.
   Field mock-up tests shall be scheduled in advance of production grouting. At least four weeks before scheduled start of field mock-up tests, the Contractor shall submit to the Engineer for approval a detailed written field mock-up test plan covering test setup, materials, ducts, inlets, outlets, anchorages, post-tensioning element and grouting and dissection procedures. Supervisory personnel and equipment used for the mock-up tests shall be the same as those to be used in production grouting. Changes in supervisory personnel, materials, equipment, and procedures shall be allowed only after a written approval by the Engineer is received. The post-tensioning element(s) shall be used in field mock-up tests and shall be stressed.

   Not less than three days after grouting, the Contractor shall dissect the test specimen for a thorough examination of grout, post-tensioning steel and the duct. A report describing the trial test (including any variations from the test plan) and its findings shall be submitted to the Engineer for approval a maximum of two weeks after dissection. The report shall document all voids in the grout with respect to size, location, and any presence of free moisture or corrosion.

   The Contractor shall notify the Engineer of the time and location of the mock-up tests and dissection and ensure that the test and dissection are witnessed.

   The Engineer shall determine whether the results of the mock-up test satisfy the acceptance requirements in the contract. The acceptance requirements shall, as a minimum, include provisions for bleeding, settlement, shrinkage, or expansion, flowability, compatibility, completeness of filling, lack of corrosion, and the absence of bleed pockets. If test results do not meet the acceptance requirements, the Engineer may require additional tests at no additional cost to the Department.

8. Quality Control Testing of Grouts. A minimum of 45 days prior to grouting, a 5-lb. sample of pre-approved grout shall be submitted for quality control testing according to the tests listed in the table below. If there is fine aggregate in the grout, it shall conform to ASTM C33, and be non-reactive per ASTM C295 and C1260. Additional testing will be performed at the frequencies listed in the following table. Control charts shall be maintained for each test. When one result is outside the requirement, each batch of grout shall be tested until four batches comply. Additionally, a field mockup test will be required 4 weeks prior to grouting, as described above.

Quality Control Testing of Grout			
Test	Method	Frequency (min.)	Requirement
Flow	ASTM C939	5 CY or 1/day	Minimum of 11 seconds
Bleeding	ASTM C940	5 CY or 1/day	0% after 3 hours
Wick-induced bleeding	ASTM C940 mod.	5 CY or 1/day	0% after 4 hours
Set time	ASTM C953	5 CY or 1/day	3 hrs. min.; 12 hrs. max.
Volume change	ASTM C1090	10 CY or 1/week	0% reduction at 24 hours; 0.3% vol. change at 28days
Compressive strength	ASTM C942	5 CY or 1/day	3,000 psi at 7 days; 5,000 psi at 28 days

* Testing frequency shall be increased until the mix is within the requirement range. If corrections cannot be readily made in the opinion of the Engineer, the grout material shall be rejected.

9. Protection of Post-tension Anchorages. As soon as possible, but not to exceed 14 days after tensioning and grouting is completed, exposed end anchorages, strands, and other metal accessories shall be cleaned of rust, misplaced mortar, grout, and other such materials by abrasive blasting. Immediately following the cleaning operation, the entire surface of the anchorage recess (all metal, and metal to concrete interfaces) shall be uniformly coated with an epoxy meeting the requirements of AASHTO M235 (ASTM C881) Type II or V. The epoxy shall be applied in a manner and thickness as recommended by the manufacturer. While the epoxy is still tacky, the entire anchorage recess shall be filled with a High-Performance Mortar or concrete meeting the requirements of the HIGH PERFORMANCE CONCRETE SUPERSTRUCTURE of the special provisions. The mortar or concrete shall fill the recess to a clean, neat surface that is flush with the surrounding concrete.
   The Contractor shall submit the proposed mix design for High Performance Mortar a minimum of 45 calendar days prior to use for review and approval by the Engineer. The mortar components shall meet all raw material requirements of HIGH PERFORMANCE CONCRETE SUPERSTRUCTURE. The mortar shall contain cementitious materials and ratios consistent with the HIGH PERFORMANCE CONCRETE SUPERSTRUCTURE mix and have a minimum water-to-cement ratio of 0.38 and 28 day compressive strength of 6,000 psi.

Method of Measurement: The quantity of post-tensioning tendons to be paid for under this Section shall be the computed weight, in pounds, of permanent post-tensioning steel entering the completed structure and accepted by the Engineer. Measurement shall be the theoretical plan length measured from the work points shown on the plans with no allowance made for waste or extension past the work points. No measurement will be made for temporary post-

tensioning which shall be considered included with the work described herein. Additionally, no measurement will be made for anchorage hardware.

For quantitative determination, the following unit weights will be used:

Post-tensioning system	Weight per Unit Length
0.5 inch diameter seven-wire strand	0.52 lb/ft
0.6 inch diameter seven-wire strand	0.74 lb/ft

Basis of Payment: The contract unit price per pound for FURNISHING, INSTALLING AND STRESSING POST-TENSIONING STRANDS will include full compensation for all work involved in furnishing, placing and tensioning the post-tensioning steel in concrete structures, complete in place, as specified in the contract documents and in these specifications and as directed by the Engineer.
Full compensation for furnishing and placing additional concrete and deformed bar reinforcing steel required by the particular system used; ducts, anchoring devices, distribution plates, or assemblies and incidental parts; for furnishing samples for testing, working drawings, and for pressure-grouting ducts shall be considered as included in the contract unit price paid and no additional cost to the Department will be assessed.

PORTLAND CEMENT CONCRETE SIDEWALK CURB
CONCRETE HEADER BAND, 6”

Description. This item shall include the installation of PCC sidewalk curb and concrete header banding at locations shown on the plans, as specified in these Special Provisions, and in accordance with the City of Naperville’s Downtown Naperville Streetscape Standards, including all equipment and materials, necessary to construct the improvements as indicated in the plans and as specified herein.

Work for Concrete Header Banding shall conform with Section 424 of the Standard Specifications, except as hereinafter modified or specified.

Materials.
Concrete shall be in accordance with Section 420 of the Standard Specifications, having a minimum 14-day strength of 3500 psi.

Concrete for header banding shall be Class PV high early strength concrete with a minimum strength of 3500 psi at three (3) days.

Joint Sealant
Joint sealants shall be a one-part non-priming, non-tacking, polyurethane joint sealant with leveling properties suitable to the use intended. The color shall be selected by the Engineer.

Joint Filler Material
Joint filler material shall be a non-extruding asphalt-impregnated fiber board of a width as specified on the Drawings and in accordance with Section 1051 of the Standard Specifications. Joint filler shall extend from the bottom of the slab to within 1 inch of the top of the joint.

Dowel Rod
Dowel rods used for doweled expansion joints shall be smooth steel rod of the size specified on the Drawings. One end of the rod shall be sleeved to permit free movement within one side of the slab or other concrete component.

Base Course Granular Material
Material shall be crushed stone having a CA-6 gradation conforming to Section 1004 of the Standard Specifications.

Reinforcement
Reinforcing bars shall conform to ASTM A615, Grade 60. The welded wire mesh shall be welded plain cold-drawn steel wire fabric conforming to ASTM A185. The steel wire shall conform to ASTM A82 and be of the size indicated on the plans.

The existing subgrade shall be thoroughly compacted prior to installation of the sub-base granular material. Sub-base granular material shall be installed in accordance with these specifications and to the compacted depth indicated on the drawings.

Protective coat shall be applied as specified herein to all poured concrete except underlayment.

Construction.

Concrete Header Banding
Forms shall be oiled prior to placing concrete. All pavements and underlayments shall have a minimum cross slope of 1/4 inch per foot or as indicated on the plans. Concrete shall be placed in one course construction of the specified thickness.

The surface of all Concrete Header Banding shall have a light broom finish.

Expansion and Isolation Joints
Premolded joint filler shall be installed with attached joint caps where indicated on the plans and not be more than 50 feet apart and where new concrete work abut vertical surfaces, walks, and other existing concrete construction. Joint fillers and joint caps shall be extended to the full width and depth of the joint. Joint fillers shall be furnished in one-piece lengths for the full width of slab to be placed, wherever possible. The top edge of the joint cap shall be formed to conform to the top profile of concrete.

The concrete shall be tooled with a slight radius on each side of joint cap. After the concrete has cured sufficiently, remove top half of joint cap.

The sealant shall be installed as indicated on the plans per manufacturer's recommendations and specifications to fill space created by joint cap to top of concrete.

The surface shall be divided using control joints of the depth and configuration indicated on the drawings. The surface shall be divided by control joints extending to 1/3 the depth of the slab. Control joints shall be tooled first, then sawcut to proper depth and shall be spaced at intervals indicated on the drawings. All edges of header banding shall be shaped with an edging tool having a radius as indicated on the drawings.

Concrete pours shall be ended at expansion or control joints. Partial slabs shall not be allowed.

Protective Coat
Protective coat shall be applied to all concrete surfaces. This work shall be performed in accordance with Article 420.18 of the Standard Specifications, except that the coating shall be applied regardless of when the item being coated was constructed.

All concrete shall be cured for not less than seven (7) days after placement. All surfaces shall be protected from sun with membrane curbing compounds. During hot weather, the temperature of the concrete shall be kept below 90 degrees F. During cold weather, the temperature of the concrete shall be kept between 50 degrees F and 70 degrees F for 3 to 5 days. The concrete shall be protected from frost and rapid drying for 6 days. Warning barricades shall be properly erected to prevent premature loading or tracking of fresh concrete.

Method of Measurement. This work shall be measured at the contract unit price per foot in place.

All joint fillers, caps and sealant, dowel rods and reinforcing shall be included in the cost of CONCRETE HEADER BAND, 6" and PORTLAND CEMENT CONCRETE SIDEWALK CURB and shall not be paid for separately.

Basis of Payment. This work shall be paid for at the contract unit price per foot for CONCRETE HEADER BAND, 6" and PORTLAND CEMENT CONCRETE SIDEWALK CURB, and shall include all labor, materials, and equipment necessary to complete the work as specified.

MONUMENT TYPE A
MONUMENT TYPE B

Description. This work shall consist of furnishing and installing limestone veneer and architectural precast concrete masonry for the bridge piers as shown on the plans.

The work includes:
- Pier stone veneer.
- Pier cast stone base, caps and columns.
- Mortar and accessories.

Quality Assurance
Installation performed only by experienced workers with satisfactory record of performance on completed projects of comparable size and quality.

Stone veneer standards:
Limestone: Comply with ASTM C568, Specifications for dimensions Limestone and following physical characteristics: Wisconsin (Racine Dolomitic) limestone, Grade A. Absorption: ASTM C97, 1.36% maximum. Compressive strength: ASTM C170, 32,000 psi minimum.

Cast stone standards:
Cast Stone Institute Technical Manual (current addition).

Installation: performed only by experienced workers with satisfactory record of performance on completed projects of comparable size and quality.

All stone to be furnished form a single quarry to ensure consistent color range and texture. Samples to be presented to Engineer for approval.

Materials.
Column stone veneer:
Quarried/supplied by: Halquist Stone Company www.halquiststone.com
Color/Type: Brookfield Blend Lannon Veneer
Surface finish: Brookfield Blend – 70% Splitface (50% Grey, 50% Buff) & 30% Bedface (100% Grey)
Size: Splitface 2”-8”, Bedface 5”-12”, nominal 4” depth, random length.
Grade/quality: Standard grade free of cracks, seams or starts which may impair its structural integrity or function.
Pier cast stone base, Pier cast stone cap:
Provide architectural precast components as detailed on the plans.
Finish/ color: Dry cast limestone, natural color and texture.
Size: See plans for specific products and dimensions

Mortar Materials.
Masonry cement: ASTM C91, white nonstaining type
Aggregate: ASTM C144, clean masonry sand, 100% passing #16 sieve.
Water: Clean, fresh, and potable.
Water repellent admixture: Ammonium stearate, aluminum tristearate or calcium stearate.

Construction.
Stone Mortar Mixes.
Provide water repellent admixture in all mortar used for stone masonry work. Add to mix in accordance with manufacturer's recommendations. Maximum 2% by weight of portland cement content of mortar.
Setting mortar: 1 part nonstaining masonry cement, 1 part hydrated lime, and 6 parts damp loose sand.
Pointing mortar: same as Setting mortar.
Measure and batch materials either by volume or weight. Use accurate measuring devices to ensure uniformity and coloration of mix. Shovel count measurement of sand is not acceptable.
Mix cementitious materials and aggregate in a clean mechanical mixer for at least 5 minutes. Add water in amount to provide satisfactory workable consistency of mortar.

Cast Stone Fabrications.
Fabricate stone work as indicated or as accepted and detailed on final shop drawings. Provide holes and sinkages cut or drilled for anchors, fasteners, supports, and lifting devices as shown and as necessary to secure stone work in place. Cut and back-check for proper fit and clearance. Shape beds to fit supports.

Cut accurately to shape and dimensions indicated or accepted final shop drawings. Dress joints, bed, and vertical, straight at 90 degree angle to face. Provide drips and washes as indicated.

Joint width: Cut to allow 1/2" wide joints. Thickness: Provide thickness indicated. Saw-cut back surfaces concealed in the finished work. Jointing: Provide as indicated; when not indicated, in accordance with industry standards and practices.

Installation.
Select stone at the job site and install materials to provide an even distribution of various colors, sizes and shapes throughout the Work.
As work progresses, build in items furnished by other trades. Fill in solidly with masonry around built-in items.
Set stone in accordance with drawing details and final shop drawings for stone work. Provide anchors, supports, and other attachments shown, or necessary to secure stonework in place. Shim and adjust accessories as required for proper setting of stone. Completely fill holes, slots, and sinkages with mortar during setting.
Erect cut stone work plumb and true with joints uniform in width and accurately aligned. Cross-shaped joints in the randon ashlar pattern and joints more than three stone in length will not be accepted.
Wall facing: Set cut stone work in full beds of mortar with vertical joints buttered full. Provide setting pads and shims in same thickness as joints and in sufficient quantity to maintain uniform ½" wide and ½ " deep joint width and alignment of stone units. Provide a concave tooled exposed joint surface.
Copings: Set wall and column copings in full bed of mortar. Provide a concave tooled exposed joint surface to match wall facing. Pitch to drain.

Method of Measurement. This work shall be measured on a per each basis, including all labor, equipment and materials necessary to complete pier stone veneer, pier cast stone base, caps and columns, mortar and accessories.

Basis of Payment. This work will be paid for at the contract unit price per each for MONUMENT TYPE A and MONUMENT TYPE B which shall include all labor, materials and equipment necessary to complete the work as specified.

MONUMENT TYPE C

Description. This work shall consist of providing cast in place concrete with form liner textured surface for the wing walls as shown on the plans.

Materials. Refer to Form Liner Textured Surface, Special for form liner requirements.

Construction. Refer to plans for location and configuration of wing walls located adjacent to bridge structure.

Method of Measurement. This work shall be measured on a per each basis, including all labor, equipment and materials necessary to complete cast in place concrete wing walls with form liner textured surface.

Basis of Payment. This work will be paid for at the contract unit price per each for MONUMENT TYPE C which shall include all labor, materials and equipment necessary to complete the work as specified.

SANITARY SEWER, PVC SDR-21, 12”

Description
This work shall consist of furnishing and installing sanitary sewer according to the special provision for SANITARY SEWER, except that the pipe material shall be PVC SDR 21 pipe and have a minimum pressure rating of 200 psi.

Basis of Payment
This work will be paid at the contract unit price per lineal foot, for SANITARY SEWER, PVC SDR 21 of the pipe inside diameter specified, measured in place, which price shall be full compensation for all work and materials required for a completed sewer line including granular pipe bedding, haunching, and 6” cover material, installation of non-shear couplings, cleanout connections to manholes and sewers, removing material from roadway due to heavy rain forecasted, televising and reporting and other items necessary to provide a complete installation.

ORNAMENTAL METAL PANEL

Description. This work shall consist of fabricating, furnishing, and installing City of Naperville bronze plaques to be mounted on Monuments Type B and C as shown on the plans.

Submit shop drawings for all plaques for approval by the Engineer.

Fabricate plaques as indicated or as accepted and detailed on final shop drawings. Provide all accessories, connections fasteners and supports as shown and as necessary to secure the work in place.

Materials.

Plaques:
Supplied by: Elgin Granite Works, 847-888-4190
Material/ Finish: Cast bronze, black background w/ polished lettering and detailing
Size: See plans for specific dimensions
Logo: Artwork to be provided by City of Naperville prior to fabrication

Construction. Examine column construction prior to beginning work. Do not start plaque work until unsatisfactory conditions are corrected.

Set plaques in accordance with drawing details and final shop drawings. Provide anchors, supports, and other attachments shown, or necessary to secure the work in place. Erect work plumb and true with joints uniform in width and accurately aligned.

Method of Measurement. This work shall be measured on a per each basis, including all labor, equipment and materials necessary to complete the bronze plaques.

Basis of Payment. This work will be paid for at the contract unit price per each for ORNAMENTAL METAL PANEL.

REMOVE AND RELOCATE EXISTING PLAQUE

Description. This work shall consist of removing and salvaging the existing bridge plaque prior to demolition and reinstalling on new bridge as shown on the plans.

Construction. Reinstall on Monument Type A in location as shown on the plans and as directed by the Engineer.

Provide anchors, supports, and other attachments shown, or necessary to secure the work in place. Erect work plumb and true with joints uniform in width and accurately aligned.

Method of Measurement. This work shall be measured on a per each basis, including all labor, equipment and materials necessary to remove and relocate existing bridge plaque.

Basis of Payment. This work will be paid for at the contract unit price per each for REMOVE AND RELOCATE EXISTING PLAQUE.

DECORATIVE LIGHTING SYSTEM COMPLETE

Description. This work shall consist of furnishing, installing, and commissioning the decorative lighting system at the locations designated on the plans. This work includes providing LED luminaires, conduit, junction boxes, composite concrete handhole, cable, mounting hardware and other materials required for a complete sign lighting installation.

Luminaires. Luminaires shall be model LOGH-RO-120-48-27K-50x80-right-BK-NO-ETE-3GV, as manufactured by Lumenpulse Group, Inc., meeting the requirements below.

Color Temperature:	Adjustable, 2700° K
Input voltage:	120 volts AC
Power:	8.5 watts per foot
Lens:	Clear tempered glass
Connections:	IP66 rated
Application:	IP66, Wet location rated
Operating temperature:	-13°F to +122°F

Commissioning. This work shall include mounting, aiming, and adjusting of all lighting fixtures and accessories. This focus shall be as directed by the Engineer with labor provided by Contractor.

Commissioning and initial programming as required to ensure that the complete and installed system functions as designed to be provided by Contractor.

General Construction Requirements. The Contractor shall demonstrate to the Engineer that the lighting system is fully functioning and all connections for electrical wires are watertight.

This work will not be paid for separately but shall be included in the cost of the Decorative Lighting System Complete, and no additional compensation will be allowed.

Cleaning and Protection. After installation, the Contractor shall clean all soiled surfaces using means and materials compatible with finish surfaces. Contractor shall protect equipment from damage that could be caused by construction activities in adjacent areas.

Measurement and Payment. This work will be measured and paid for at the contract lump sum price for DECORATIVE LIGHTING SYSTEM COMPLETE.

DUCTILE IRON WATER MAIN (SPECIAL)

Description
This work shall consist of the installation of 12” water main across the West Branch of the DuPage River where main is located below existing rock as shown on the plans. This work shall consist of furnishing and installing Class 52 ductile iron pipe fat the locations, profiles and details shown in these Contract Documents.

River Control
The water main shall be installed during Stage I – Phase I and Stage I – Phase II as shown of the Suggested Sequence of Work, Structure No. 022-6749 in the plans. The north half of DUCTILE IRON WATER MAIN (SPECIAL) will be constructed within the Coffer Dam during Stage I – Phase I beginning outside the riverbank where the main falls below the rock elevation and will terminate with a water-tight plug. The south half DUCTILE IRON WATER MAIN (SPECIAL) will be constructed within the Coffer Dam during Stage I – Phase II, beginning at the water-tight plug and terminating at the point where the main rises above the rock elevation.

Excavation
Excavation shall include removal of the riverbed material and ROCK EXCAVATION as shown on the details in the plans. Riverbed removal shall be considered included in the cost of DUCTILE IRON WATER MAIN (SPECIAL). ROCK EXCAVATION shall be paid for separately under that pay item.

Materials and Construction
All materials and construction shall comply with the special provision for DUCTILE IRON WATER MAIN except that all joints shall be restrained joints.

Backfill and Concrete Encasement

The water main piping shall be installed in concrete encasement as shown on the plan details with a depth of 24" minimum below the existing top of bedrock elevation. Additional backfill of excavated bedrock shall be added above the concrete encasement to the riverbed elevation. Additional backfill of excavated bedrock shall be considered included in this pay item. The cost of rock excavation shall be paid for as ROCK EXCAVATION.

Basis of Payment

This work will be paid at the contract unit price per lineal foot, for DUCTILE IRON WATER MAIN (SPECIAL), measured in place, which price shall be full compensation for all work and materials required for a completed sewer line as described in this special provision.

FIBER OPTIC TERMINATIONS

Description. This specification sets forth the minimum requirements for terminating existing or new fibers within traffic signal double handholes as indicated on the Plans.

Fiber terminations shall utilize a pre-fabricated, factory-terminated drop cable with ST-connectors factory-installed on one end of a cable pigtail, which connects the adapters in the distribution enclosure to the splices at the mainline cable (in the double hand hole).

The Contractor shall modify existing distribution enclosures at locations shown on the Plans to accommodate required terminations. All fibers being terminated shall be connected to the distribution enclosure and labeled at the connector and also at the enclosure bulkhead. The label shall include the direction, fiber number and also identified as a spare for (unterminated} spare connectors (e.g. S1, S2, S3-Spare, N11, N12, etc.).

The Contractor shall fusion splice the other end of the drop cable to appropriate fibers in the mainline cable as specified in the Plans. The maximum splice loss for the fusion splices shall not exceed 0.1 dB. The cable shall be optically and mechanically equivalent to the fiber optic mainline cable specified for this project. All fusion splices shall be secured on splice trays capable of accommodating the required number of fusion splices. Existing multi-mode fibers shall not be spliced or connectorized and shall be labeled (as SM), tied and bound in the splice tray.

Fiber optic terminations at each field cabinet location shall include all necessary splicing and connectorizations as specified in the following table.

Termination Panel Type:	12-Fiber
(SM) Fiber Count:	12
Connector Type:	ST
Connector Count:	12
Splice Count:	up to 12

The quality of all fiber splices shall be verified by testing and documentation in accordance with Article 801.13(d).

Basis of Payment. This work shall be paid for at the contract unit price per each location as 12 FIBER OPTIC TERMINATIONS 12 FIBER as specified in the Plans, which will be payment in full for terminating each required singlemode fiber and splicing of drop cables and mainline cables; modification of existing distribution enclosure(s); furnishing and installation of all connectors, drop cables, pigtails; and testing and documentation as described herein.

ARCHITECTURAL PRECAST CONCRETE PANEL

Description. This work shall consist of fabricating, furnishing, transporting, and placing precast architectural concrete panels as specified herein, as shown on the plans, and as directed by the Engineer. Work shall include preparation of shop drawings, fabrication, placement, mortar, anchoring, caulk, and cleanup necessary for construction of precast architectural concrete.

Materials. Precast architectural concrete shall be 5,000 PSI concrete with 6%-8% air entrainment, limestone type finish as indicated in plans. Color to be buff, to be approved by the Engineer prior to fabrication. Dimensions to be as shown on the plans.

Provide Type S mortar suitable for exterior precast architectural concrete work. Submit mortar manufacturer's product data to Owner's Representative for approval prior to ordering. Engineer to select mortar color from manufacturer's full range of color options.

Provide galvanized metal attachment anchors as recommended by the fabricator or as shown on the plans.

Fabrication. Prior to fabrication, prepare and submit shop drawings for each type of precast architectural concrete based on field measurements. Fabricator to be a qualified company that assumes responsibility for engineering precast architectural concrete units to comply with the required performance requirements.

Fabricate precast architectural concrete units straight and true to size and shape as shown on the plans.

Provide reinforcement to resist handling, transportation, and erection stresses and cast-in anchorage hardware as required for applications as shown on the plans.

Place concrete in a continuous operation to prevent seams or planes of weakness from forming in precast concrete units. Thoroughly consolidate placed concrete by internal and external vibration without dislocating or damaging reinforcement and built-in items, and minimize pour lines, honeycombing, or entrapped air on surfaces.

Cure concrete by moisture retention without heat, or by accelerated heat curing using low-pressure live steam, or radiant heat and moisture. Cure units until compressive strength is high enough to ensure that stripping does not have an effect on performance or appearance of final product.

Construction. Erect precast architectural concrete level, plumb, and square within specified allowable tolerances. Provide temporary supports and bracing as required to maintain position,

stability, and alignment as units are being permanently connected. Maintain horizontal and vertical joint alignment and uniform joint width as erection progresses. Unless otherwise indicated, provide for uniform joint widths of 3/4 inch.

Connect precast architectural concrete units in position by grouting or as otherwise indicated on shop drawings. Remove temporary shims, wedges, and spacers as soon as practical after connecting and grouting are completed.

Grout connections where required or indicated. Retain grout in place until hard enough to support itself. Pack spaces with stiff grout material, tamping until voids are completely filled. Place grout to finish smooth, level, and plumb with adjacent concrete surfaces. Keep grouted joints damp for not less than 24 hours after initial set. Promptly remove grout material from exposed surfaces before it affects finishes or hardens.

Caulk joints as shown on plans.

Measurement. This work shall be measured at the contract unit price per square foot including preparation of shop drawings, fabrication, placement, mortar, anchoring, caulk, cleanup, and all other materials, labor, and equipment required to complete this work.

Basis of Payment. This work shall be paid for at the contract unit price per square foot for ARCHITECTURAL PRECAST CONCRETE PANEL, and no additional compensation will be allowed.

CONCRETE STEPS

Description: This work shall consist of constructing concrete steps to the lines, grades and details as shown in the Plans. This work shall be performed in accordance with Section 202 and 606 of the Standard Specifications. This work shall include excavation, subbase granular material (Type B), Portland cement concrete, and protective coat.

Standard Drawing 606001-08 shall be referenced for dowel and tie bar placement at the concrete steps location shown in the Plans.

Method of Measurement. Concrete steps shall be measured for payment based on the plan dimensions for the steps and the volume computed in cubic yards of concrete. The included subbase material and bars shall not be measured separately for payment.

Basis of Payment: This work will be paid for at the contract unit price per cubic yard for CONCRETE STEPS.

STABILIZED CONSTRUCTION ENTRANCE

Description: This work shall consist of furnishing, installation, maintenance and removal of stabilized pad of aggregate underlain with filter fabric as shown on the plans or directed by the Engineer.

Materials: Materials shall conform to the following:

Aggregate size. IDOT Coarse Aggregate Graduation: CA-1 CA-2 CA-3, or CA-4.

Filter Fabric shall consist of synthetic polymers composed of at least 85 percent by weight polypropylene, polyesters, polyamides, polyethylene, polyolefins, or polyvinylidene chlorides. The geotextile shall be free of any chemical treatment or coating that significantly reduces its porosity. Fibers shall contain stabilizers and/or inhibitors to enhance resistance to ultraviolet lights.

Construction Requirements: The coarse aggregate shall be a thickness of 6 inches or more. The stone entrance should not be filled until the area has been inspected and approved by the Engineer.

The rock shall be dumped and spread into place in approximately horizontal layers not more than 3 feet in thickness. It shall be placed in a manner to produce a reasonable homogeneous stable fill that contains no segregated pockets, or larger or small fragments or large unfilled space caused by bridging of larger fragments. No compaction will be required beyond that resulting from the placing and spreading operations.

The minimum width and length shall be 14 and 40 feet, respectively.

All surface water flowing or diverted toward the construction entrance shall be piped across the entrance. Any pipe used for this will be considered incidental to the STABILIZED CONSTRUCTION ENTRANCE. The stabilized construction entrance will have positive drainage away from the roadway.

The entrance shall remain in place and be maintained until the disturbed area is stabilized. Any sediment spilled onto public rights-of-way must be removed immediately.

Basis of Payment: The work will be measured and paid for at the contract unit price per square yard for STABILIZED CONSTRUCTION ENTRANCE.

SEDIMENT CONTROL, SILT CURTAIN

Description: This work shall consist of the furnishing, installing, maintaining, replacing, relocating, and removal of a flotation silt curtain assembly, designed to collect sediment/debris from in-stream work areas at locations determined by the Contractor based on anticipated construction operations and as directed by the Engineer to preserve the water quality of the river.

Equipment: The silt curtain should be of appropriate size to perform the required function of isolating the work area from the rest of the stream, with length of the curtain extending at least 1 foot higher than the elevation of water at all locations. The silt curtain assembly shall consist of the silt barrier with flotation segments and weighing devices and all required anchorage devices. The curtain shall be in good working condition and shall meet the approval of the Engineer.

Anchors shall be installed per the manufacturer's recommendations on both the shore and stream side to maximize stability. Shore anchors shall consist of a post with dead man. Stream anchors shall be sufficient size, type and strength to stabilize the curtain with the number and spacing dependent on the current velocities. Anchors shall be buoyed to prevent the curtain from being pulled under water.

The silt curtain shall meet the specifications of the silt curtain manufacturer and the following physical and performance properties:

	Testing Method	Requirement
Grab Tensile Warp Strength	ASTM D-4632	≥ 240 lbs
Elongation @ Break	ASTM D-4632	≥ 60%
Trapezoidal Tear	ASTM D-4533	≥ 90 lbs.
Puncture Strength	ASTM D-4833	≥ 65 lbs.
UV Stability @ 500 hrs.	ASTM D-4355	≥ 70%
Permittivity	ASTM D-4491	≥ 0.1 sec-1
Water Flow Rate	ASTM D-4491	≥ 11 gpm/ft^2
AOS (US sieve #)	ASTM D-4751	≥ 140 sieve
Material Construction	Nonwoven	

All values are minimum average roll values.

Installation: The silt curtains shall be installed according to the manufacturer specifications, and in a manner approved by the Engineer prior to the start of construction within the body of water. Additional anchorage may be required based on the stream characteristics and manufactures specifications. Additional anchorage may consist of steel or timber driven piles to insure proper installation & anchoring.

Requirements: The Contractor shall inspect the work site to review the stream characteristics where the work is to occur. The silt curtain assembly shall be installed in the stream in a configuration that prevents silt from traveling beyond the work area but does not cause flooding upstream of the work area. The silt curtain shall be installed in a manner sufficient to withstand ten-year flood water level frequency. Silt curtains shall not be installed at an angle greater than 45° from parallel with the direction of flow. Routine maintenance includes continually maintaining a properly working silt curtain. Also included is the regular removal and disposal of excess sediment in contact with either side of the curtain, as directed by the Engineer. Excess sediment, four inches or greater, shall be removed between 48 and 72 hours prior to the removal of the silt curtain. The Contractor shall remove the silt curtain in a manner that will prevent turbidity and siltation within the waterway. Pumping of water contained within the silt curtain or any other structure shall be done in a manner approved by the Engineer. Direct pumping of water back into the stream shall not be permitted. All water pumping operations/procedures must be approved by the Engineer. The silt curtain assembly shall

remain in place until the Engineer directs the Contractor for removal. The silt curtain assembly shall remain the property of the Contractor.

Basis of Payment: This work will be paid for as EACH for SEDIMENT CONTROL, SILT CURTAIN.

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:

	Item	Article/Section
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 (16 mm) instead of 3/4 inch (19 mm) 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 (2 mm) 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 (2.1 m) above the near edge of the pavement and shall be a minimum of 2 ft (600 mm) beyond the edge of the paved shoulder. A minimum of two (2) 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.

Method of Measurement.
This work shall be measured for payment in square feet (square meters) 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 (square meter) for TEMPORARY INFORMATION SIGNING.

MAINTENANCE OF LIGHTING SYSTEMS

Effective: March 1, 2017

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 Section109.04.

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. 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 a given 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 a given 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.

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. 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.

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 105º 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 0º 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 105º 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 meter (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."**

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."

TRAFFIC SIGNAL GENERAL REQUIREMENTS (D1 LR)

Effective: April 1, 2016
Revised: July 20, 2016
LR800.01TS

These Traffic Signal Special Provisions and the "District One Standard Traffic Signal Design Details" supplement the requirements of the State of Illinois "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 IMSA 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 this 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 Vendor. Company that sells a particular type of product directly to the contractor or the Equipment Supplier.

101.57 Equipment supplier. Company that supplies, represents and provides technical support for IDOT District One approved traffic signal controllers and other related equipment. The Equipment Supplier shall be located within IDOT District One and shall:

- Be full service with on-site facilities to assemble, test and trouble-shoot traffic signal controllers and cabinet assemblies.
- Maintain an inventory of IDOT District One approved controllers and cabinets.
- Be staffed with permanent sales and technical personnel able to provide traffic signal controller and cabinet expertise and support.
- Technical staff shall hold current IMSA Traffic Signal Technician Level III certification and shall attend traffic signal turn-ons and inspections with a minimum 14 calendar day notice.

Submittals.
Revise Article 801.05 of the Standard Specifications to read:

All material approval requests shall be submitted to the Resident Engineer, who will then forward the submittal on to the IDOT Local Agency Area Engineer and the Local Agency. Electronic material submittals shall follow the District's Traffic Operations Construction Submittals guidelines. General requirements include:

1. All material approval requests shall be made prior to or no later than one week after 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 requested by the Bureau of Local Roads and Streets, the number of requested sets of the manufacturer's descriptive literatures and technical data for the traffic signal materials shall be submitted.
5. 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.
6. 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.
7. Partial or incomplete submittals will be returned without review.
8. Certain non-standard mast arm poles and special structural elements will require additional review from IDOT's Central Office. Examples include ornamental/decorative, non-standard length mast arm pole assemblies and monotube structures. The Contractor shall account for the additional review time in his schedule.
9. The contract number, the name of the lead local agency (as indicated on the cover sheet of the plans), section number, project location/limits and corresponding pay code number must be on each sheet of correspondence, catalog cuts and mast arm poles and assemblies drawings.
10. 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.
11. 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 'Information Only'. 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.
12. The Contractor shall secure approved materials in a timely manner to assure construction schedules are not delayed.
13. All submitted items reviewed and marked 'APPROVED AS NOTED' or 'DISAPPROVED' are to be resubmitted in their entirety, unless otherwise indicated within the submittal comments or transmittal accompanying the documents, with a disposition of previous comments to verify contract compliance at no additional cost to the contract.
14. 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.

15. 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.

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 equipment supplier in District One. The Department reserves the right to request any controller and cabinet to be tested at the equipment supplier's facility prior to field installation, at no extra cost to this contract.

Maintenance and Responsibility.
Revise Article 801.11 of the Standard Specifications to read:

a. Existing traffic signal installations and/or any electrical facilities at all or various locations may be altered or reconstructed totally or partially as part of the work on this Contract. The Contractor is hereby advised that all traffic control equipment, presently installed at these locations, may be the property of the State of Illinois, Department of Transportation, Division of Highways, County, Private Developer, Municipality or Transit Agency in which they are located. Once the Contractor has begun any work on any portion of the project, all traffic signals within the limits of this contract or those which have the item "Maintenance of Existing Traffic Signal Installation," "Temporary Traffic Signal Installation(s)" and/or "Maintenance of Existing Flashing Beacon Installation," shall become the full responsibility of the Contractor. The Contractor shall supply the Resident Engineer, IDOT Local Agency Area Engineer, Local Agency, the Owner of the traffic signal, and/or their Electrical Maintenance Contractor with two 24-hour emergency contact names and telephone numbers.

b. Automatic Traffic Enforcement equipment such as red lighting running and railroad crossing camera systems are owned and operated by others and the Contractor shall not be responsible for maintaining this equipment.

c. Regional transit, County and other agencies may also have equipment connected to existing traffic signal or peripheral equipment such as PTZ cameras, switches,

transit signal priority (TSP and BRT) servers and other devices that shall be included with traffic signal maintenance at no additional cost to the contract.

d. When the project has a pay item for "Maintenance of Existing Traffic Signal Installation," "Temporary Traffic Signal Installation(s)" and/or "Maintenance of Existing Flashing Beacon Installation," the Contractor must notify the Resident Engineer, the Local Agency, the Owner of the traffic signal, and/or their Electrical Maintenance Contractor 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 (7) 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. If work is started prior to an 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 no cost to the owner of the traffic signal. 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.

e. 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 fifteen (15) minutes, must have prior approval of the Engineer. Approval to shut down the traffic signal installation will only be granted during the period extending from 10:00 a.m. to 3:00 p.m. on weekdays. Shutdowns shall not be allowed during inclement weather or holiday periods.

f. The Contractor shall be fully responsible for the safe and efficient operation of the traffic signals and other equipment noted herein. Any inquiry, complaint or request by the Department, the Local Agency, the Owner of the traffic signal, and/or their Electrical Maintenance Contractor, or the public, shall be investigated and repairs begun within one hour. Failure to provide this service will result in liquidated damages of $1000 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 $1000 per month per occurrence. Unpaid bills will be deducted from the cost of the Contract. The Department, the Local Agency, the Owner of the traffic signal, and/or their Electrical Maintenance Contractor may inspect any signalizing device under their jurisdiction at any time without notification.

g. 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.

h. The Contractor shall be responsible to clear snow, ice, dirt, debris or other condition that obstructs visibility of any traffic signal display or access to traffic signal equipment.

i. The Contractor shall maintain the traffic signal in normal operation during short or long term loss of utility or battery back-up power at critical locations designated by the Engineer. Critical locations may include traffic signals interconnected to railroad warning devices, expressway ramps, intersection with an SRA route, critical corridors or other locations identified by the Engineer. Temporary power to the traffic signal must meet applicable NEC and OSHA guidelines and may include portable generators and/or replacement batteries. Temporary power to critical locations shall not be for separately but shall be included in the contract.

Damage to Traffic Signal System.
Add the following to Article 801.12(b) of the Standard Specifications to read:

Any traffic signal control equipment damaged or not operating properly from any cause shall be replaced with new equipment meeting current District One traffic signal specifications and/or applicable Local Agency 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 otherwise the traffic signal installation will not be accepted. Cable splices are only allowed at the bases of post and mast arms.

Temporary replacement of damaged or knockdown of a 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.

Automatic Traffic Enforcement equipment, such as Red Light Enforcement cameras, detectors, and peripheral equipment, 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:

It is the intent to have all electric work completed and equipment field tested by the Equipment Supplier 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 (2) 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 road is open to traffic, except as otherwise provided in Section 850 of the Standard Specifications, the Contractor may request a turn-on and inspection of the completed traffic signal installation at each separate location. This request must be made to the Bureau of Local Roads and Streets at (847) 705-4487 a minimum of seven (7) 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 Emergency Vehicle Preemption (EVP) is included in the project. When the contract includes the item RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM, OPTIMIZE TRAFFIC SIGNAL SYSTEM, or TEMPORARY TRAFFIC SIGNAL TIMINGS, 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 control equipment vendor's office 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 Agency that is responsible for the maintenance of each traffic signal installation will assume the maintenance upon successful completion of this inspection.

The District requires the following Final Project Documentation from the Contractor at traffic signal turn-ons in electronic format in addition to hard copies where noted. A CD/DVD shall be submitted with separate folders corresponding to each numbered title below. The CD/DVD shall be labelled with date, project location, company and contract or permit number. Record Drawings, Inventory and Material Approvals shall be submitted prior to traffic signal turn-on for review by the Department as described here-in.

Final Project Documentation:

1. Record Drawings. Signal plans of record with field revisions marked in red ink. One hard copy set of 11"x17" record drawings shall also be provided.

2. Inventory. Inventory of new and existing traffic signal equipment including cabinet types and devices within cabinets in an Excel spread sheet format. One hard copy shall also be provided.
3. Pictures. Digital pictures of a minimum 12M pixels of each intersection approach showing all traffic signal displays and equipment. Pictures shall include controller cabinet equipment in enough detail to clearly identify manufacture and model of major equipment.
4. Field Testing. Written notification from the Contractor and the equipment vendor of satisfactory field testing with corresponding material performance measurements, such as for detector loops and fiber optic systems (see Article 801.13). One hard copy of all contract required performance measurement testing shall also be provided.
5. Materials Approval. The material approval letter. A hard copy shall also be provided.
6. Manuals. Operation and service manuals of the signal controller and associated control equipment. One hard copy shall also be provided.
7. Cabinet Wiring Diagram and Cable Logs. Five (5) hard copies 11" x 17" of the 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.
8. Controller Programming Settings. The traffic signal controller's timings; backup timings; coordination splits, offsets, and cycles; TBC Time of Day, Week and Year Programs; Traffic Responsive Program, Detector Phase Assignment, Type and Detector Switching; and any other functions programmable from the keyboard. The controller manufacturer shall also supply a printed form, not to exceed 11" x 17" for recording that data noted above. The form shall include a location, date, manufacturer's name, controller model and software version. The form shall be approved by the Engineer and a minimum of three (3) copies must be furnished at each turn-on. The manufacturer must provide all programming information used within the controller at the time of turn-on.
9. Warrantees and Guarantees. All manufacturer and contractor warrantees and guarantees required by Article 801.14.
10. GPS coordinate of traffic signal equipment as describe 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 the traffic signal. If approved, traffic signal acceptance shall be verbal at the "turn on" 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 (2) weeks after the final inspection. The Contractor shall notify the Electrical Maintenance Contractor to inspect 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 above requirements 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 above requirements 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 2nd paragraph 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, the reduced-size 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 on CDROM as well as hardcopy for review and approval. 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 catalog cuts which have been Approved or Approved as Noted shall be submitted in PDF format along with the record drawings. 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."

As part of the record drawings, the Contractor shall inventory all traffic signal equipment, new or existing, on the project and record information in an Excel spreadsheet. The inventory shall include equipment type, model numbers, software manufacturer and version and quantities.

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 this contract:

- All Mast Arm Poles and Posts
- Traffic Signal Wood Poles
- Rail Road Bungalow
- UPS
- Handholes
- Conduit roadway crossings
- Controller Cabinets
- Communication Cabinets
- Electric Service Disconnect locations
- CCTV Camera installations

- Fiber Optic Splice Locations
- Conduit Crossings

Datum to be used shall be North American 1983.

Data shall be provided electronically and in print form. 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:

- File shall be named: TSXXX-YY-MM-DD (i.e. TS22157_15-01-01)
- 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, per the IDOT special provisions

Examples:

Date	Item	Description	Latitude	Longitude
01/01/2015	MP (Mast Arm Pole)	NEQ, NB, Dual, Combination Pole	41.580493	-87.793378
01/01/2015	HH (Handhole)	Heavy Duty, Fiber, Intersection, Double	41.558532	-87.792571
01/01/2015	ES (Electrical Service)	Ground mount, Pole mount	41.765532	-87.543571
01/01/2015	CC (Controller Cabinet)		41.602248	-87.794053
01/01/2015	RSC (Rigid Steel Crossing)	IL 31 east side crossing south leg to center HH at Klausen	41.611111	-87.790222
01/01/2015	PTZ (PTZ)	NEQ extension pole	41.593434	-87.769876
01/01/2015	POST (Post)		41.651848	-87.762053
01/01/2015	MCC (Master Controller Cabinet)		41.584593	-87.793378
01/01/2015	COMC (Communication Cabinet)		41.584600	-87.793432
01/01/2015	BBS (Battery Backup System)		41.558532	-87.792571
01/01/2015	CNCR (Conduit Crossing)	4-inch IL 31 n/o of Klausen	41.588888	-87.794440

Prior to the collection of data, the contractor shall provide a sample data collection of at least six data points of known locations to be reviewed and verified by the Engineer to be accurate within 1 foot. Upon verification, data collection can begin. 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 submit the data for review and approval as specified.

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 a minimum 1 foot 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."

Delete the last sentence of the 3rd paragraph of Article 801.16.

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 this Contract requires the services of an Electrical Contractor, the Contractor shall be responsible at his/her own expense for locating existing IDOT electrical facilities prior to performing any work. If this Contract does not require the 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 may be at the expense of the Contractor. For non-IDOT signals, the Contractor shall coordinate with the agency owning the traffic signals for locating the existing electrical facilities. 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.

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, 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. Restoration of the work area shall be included in the contract without any extra compensation allowed to the Contractor.

Bagging Signal Heads.

Light tan colored traffic and pedestrian signal reusable covers shall be used to cover dark/un-energized signal sections and visors. 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.

RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM

Effective: May 22, 2002
Revised: July 1, 2015
800.03TS

Description.
This work shall consist of re-optimizing a closed loop traffic signal system according to the following Levels of work.

LEVEL I applies when improvements are made to an existing signalized intersection within an existing closed loop traffic signal system. The purpose of this work is to integrate the improvements to the subject intersection into the signal system while minimizing the impacts to the existing system operation. This type of work would be commonly associated with the addition of signal phases, pedestrian phases, or improvements that do not affect the capacity at an intersection.

LEVEL II applies when improvements are made to an existing signalized intersection within an existing closed loop traffic signal system and detailed analysis of the intersection operation is desired by the engineer, or when a new signalized or existing signalized intersection is being added to an existing system, but optimization of the entire system is not required. The purpose of this work is to optimize the subject intersection, while integrating it into the existing signal system with limited impact to the system operations. This item also includes an evaluation of the overall system operation, including the traffic responsive program.

For the purposes of re-optimization work, an intersection shall include all traffic movements operated by the subject controller and cabinet.

After the signal improvements are completed, the signal shall be re-optimized as specified by an approved Consultant who has previous experience in optimizing Closed Loop Traffic Signal Systems for District One of the Illinois Department of Transportation. The Contractor shall contact the Traffic Signal Engineer at (847) 705-4424 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 note herein.

A listing of existing signal equipment, interconnect information, phasing data, and timing patterns may be obtained from the Department, if available and as appropriate. The existing SCAT Report

is available for review at the District One office and if the Consultant provides blank computer discs, copies of computer simulation files for the existing optimized system and a timing database will be made for the Consultant. The Consultant shall confer with the Traffic Signal 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.

(a) LEVEL I Re-Optimization

1. The following tasks are associated with LEVEL I Re-Optimization.
   a. Appropriate signal timings shall be developed for the subject intersection and existing timings shall be utilized for the rest of the intersections in the system.
   b. Proposed signal timing plan for the modified intersection(s) shall be forwarded to IDOT for review prior to implementation.
   c. Consultant shall conduct on-site implementation of the timings at the turn-on and make fine-tuning adjustments to the timings of the subject intersection 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 60 days from date of timing plan implementation.

2. The following deliverables shall be provided for LEVEL I Re-Optimization.
   a. Consultant shall furnish to IDOT a cover letter describing the extent of the re-optimization work performed.
   b. Consultant shall furnish an updated intersection graphic display for the subject intersection to IDOT and to IDOT's Traffic Signal Maintenance Contractor.

(b) LEVEL II Re-Optimization

1. In addition to the requirements described in the LEVEL I Re-Optimization above, the following tasks are associated with LEVEL II Re-Optimization.
   a. Traffic counts shall be taken at the subject intersection(s) after the traffic signals are approved for operation by the Area Traffic Signal 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 and/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, multi-unit heavy vehicles, and transit buses.
   b. As necessary, the intersection(s) shall be re-addressed and all system detectors reassigned in the master controller according to the current standard of District One.
   c. Traffic responsive program operation shall be evaluated to verify proper pattern selection and lack of oscillation and a report of the operation shall be provided to IDOT.

2. The following deliverables shall be provided for LEVEL II Re-Optimization.
   a. Consultant shall furnish to IDOT one (1) copy of a technical memorandum for the optimized system. The technical memorandum shall include the following elements:
      (1) Brief description of the project

(2) Printed copies of the analysis output from Synchro (or other appropriate, approved optimization software file)
(3) Printed copies of the traffic counts conducted at the subject intersection

b. Consultant shall furnish to IDOT two (2) CDs for the optimized system. The CDs shall include the following elements:
(1) Electronic copy of the technical memorandum in PDF format
(2) Revised Synchro files (or other appropriate, approved optimization software file) including the new signal and the rest of the signals in the closed loop system
(3) Traffic counts conducted at the subject intersection(s)
(4) New or updated intersection(s) graphic display file for the subject intersection(s)
(5) The CD shall be labeled with the IDOT system number and master location, as well as the submittal date and the consultant logo. The CD case shall include a clearly readable label displaying the same information securely affixed to the side and front.

Basis of Payment.
This work shall be paid for at the contract unit price each for RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM – LEVEL I or RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM – LEVEL II, which price shall be payment in full for performing all work described herein per intersection. Following completion of the timings and submittal of specified deliverables, 100 percent of the bid price will be paid. Each intersection will be paid for separately.

GROUNDING OF TRAFFIC SIGNAL SYSTEMS

Effective: May 22, 2002
Revised: July 1, 2015
806.01TS

Revise Section 806 of the Standard Specifications to read:

General.
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 were 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 conductor*s* 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.

3. All metallic and non-metallic raceways shall have a continuous equipment grounding conductor, except raceways containing only detector loop lead-in circuits, circuits under 50 volts 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.

GATE VALVE 12" WITH VAULT, 6' DIAMETER (VALVE ATTACHED TO LINE TEE)

Description

This work shall include a 12" pressure connection with valve and vault as shown on the City Standard Detail for "Valve Vault with Cast/Ductile Iron Sleeve Pressure Tap". Tapping valves shall be constructed of cast or ductile iron to allow full size cutters to be used. Seating of the disc gate shall not require any sliding or wedging to achieve a zero leakage, bottle-tight seal. A maximum of (3) internal moving parts shall be required for operation of the valve. The stem collar must be protected from outside grit, sand, etc., by dual 0-rings above the stem collar. There shall also be a 0-ring below the stem collar sealing off the lubrication chamber from the line fluid.

Pressure energized 0-rings to be used in place of flat gaskets on flanged joints in valve body/bonnet.

The tapping sleeve shall be mechanical joint made of cast or ductile iron (Tyler/Union). After the existing water main pipe surface has been properly cleaned and disinfected, the tapping sleeve shall be mounted to the main and tapping valve to form a pressure-tight connection. The installation shall be pressure tested at operating pressure plus 50 percent, to insure the integrity of the installation. This shall be a hydrostatic test, introduced through a port on the tapping machine, or through a tapped mechanical joint plug on the outlet side of the tapping valve. The tapping machine and the tapping valve and sleeve assembly shall be externally supported so that no additional weight is placed upon the main(s).

All tapping valves shall be opened to the left (counterclockwise). Valves shall be manufactured by Clow, American, Waterous, or Kennedy. All nuts and bolts on the valve shall be stainless steel. Vaults shall be constructed of precast concrete sections conforming to ASTM C-478 and in accordance to the detail provided on plans. The frame and lid shall be as indicated in the plan details. See City of Naperville Standard Details in the plan sheets for further information.

The Contractor shall note that at some valve vault locations, a 2” copper service for flushing purposes will be required. This will not be paid for directly but shall be included in the unit price bid for the size and type of valve and valve vault specified.

Valve vaults shall be constructed with a precast base section or monolithic base structure as shown on the plans on a compacted 6" crushed aggregate base (CA-11). Contractor shall excavate the proposed area for the pressure connection prior to installing water main to confirm no pipe joint exists, otherwise, a new roadway crossing alignment will be agreed upon to avoid any existing pipe joints. All lift holes on precast elements shall be thoroughly wetted and filled with mortar, smoothed inside and out. The first barrel section shall be uniformly supported by the base concrete and shall not bear directly on any of the pipes. Castings shall be set in preformed non-hardening butyl mastic rope and shall be shop painted with an asphaltic base paint. Valves shall be installed in accordance with the manufacturer's recommendations.

Basis of Payment
Payment for valve vault with tapping valve shall be made at the contract unit price per each for PRESSURE CONNECTION 12” WITH VAULT, 5’ DIAMETER. Payment shall be full compensation for excavation, removal of spoils, tapping valve, tapping sleeve, valve vault, frame and lid, copper service, blocking, bedding, CA-6 backfill, and all labor materials, equipment and incidentals as shown on the plans and as specified herein to install the valve with valve vault.

APPROACH SLAB REMOVAL

Description: This work shall consist of the complete removal of the existing approach slabs including bituminous overlays, reinforcing bars, sleeper slabs, and approach parapet with accompanying approach bridge fence railing at locations designated in the Plans and in accordance with the applicable portions of Sections 440 and 501 of the Standard Specifications.

This work shall also include the removal of existing timber piles and pile caps to at least 300mm (1 ft) below the proposed elevation of subgrade or ground surface within the area of construction and within the limits of the right of way when encountered. This work shall also include the removal of any mud jack cylinders encountered within the existing approach slabs.

The Contractor shall remove the existing approach slabs in a manner so as not to damage the adjacent structures that are to remain.

Method of Measurement: APPROACH SLAB REMOVAL shall be measured in place in square yards.

Basis of Payment: This work will be paid for at the contract unit price per square yard for APPROACH SLAB REMOVAL.

UNDERDRAIN CONNECTION TO STRUCTURE

Description: This work shall consist of making a pipe underdrain connection to an existing drainage structure or culvert as shown in the plans and in accordance with Section 601 of the Standard Specifications.

The Contractor shall carefully core a hole into the existing drainage structure or culvert the same size as the external diameter as the proposed pipe underdrain at the line and grade as shown in the plans. The protrusion of the proposed pipe underdrain into the drainage structure or culvert must not exceed one inch. After the pipe underdrain is installed, the drainage structure or culvert shall be mortared with a non-shrink concrete grout.

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

Basis of Payment: This work will be paid for at the contract unit price per each for UNDERDRAIN CONNECTION TO STRUCTURE.

STORM SEWER WATER MAIN REQUIREMENT

Description: This work shall consist of furnishing and installing water main quality pipe at the locations shown on the plans.

Materials:

a) Ductile iron water main Class 52

Joints for Ductile Iron pipe shall be:

1. Mechanical Joints - AWWA C111 and C600
2. Push-On-Joints - AWWA C111 and C600

b) Polyvinyl Chloride (PVC) ANSI/AWWA C900-16, DR-18, with ASTM D1784 Cell Class 12454. Joints shall be gasketed, meeting ASTM F477.

CONSTRUCTION REQUIREMENTS

The storm sewer water main shall be installed according to the applicable portions of Section 550 and 561 of the Standard Specifications and the Standard Specifications for Water and Sewer Main Construction. In case of conflict between the Standard Specifications, the Standard Specifications for Water and Sewer Main Construction in Illinois shall take precedence and shall govern.

No testing or disinfections of the newly laid storm sewer water main will be required. A water-tight connection is required between the storm sewer water main and the storm sewer.

Method of Measurement: Storm sewer water main of the various type, size, and diameters will be measured for payment in feet, measured in place.
Basis of Payment: This work will be paid for at the contract unit price per Foot for STORM SEWER WATER MAIN QUALITY PIPE, of the type, size, shape and diameter specified.

SANITARY SEWER

Description
This work shall consist of furnishing and installing PVC SDR 26 pipe of the size specified for construction of gravity-type sanitary sewer lines at the locations, profiles and details shown in these Contract Documents.

Materials
The sanitary sewer shall have a SDR of 26 and be manufactured in accordance with ASTM D-2241 or AWWA C900. All sewer pipe shall have a minimum pressure rating of 160 psi. The pipe shall be made of PVC plastic having a minimum cell classification of 12454-C for ASTM 2241. Flexible elastometric joints shall conform to ASTM D-3139.

Trench Backfill
The sewer main piping shall be installed in a CA-11 granular bedding, haunching, and initial backfill from the center line of the pipe to 6” above to the top of the pipe as shown on the Drawings and in conformance with Section 20-4 of the “Standard Specifications of Water and Sewer Main Construction in Illinois”. Trench backfill shall be calculated for payment as outlined in the Special Provision for WATER MAIN.

Connections to Existing Sewer
The contractor will be required to connect to new pipe to existing pipe using non-shear mission couplings. If the connection will be made to a CIPP-lined sanitary sewer, the contractor shall use MaxAdaptor couplings to be provided by the City at no charge. Contractor shall remove the host pipe and make the connection directly to the CIPP liner. Connection to dissimilar materials (non

CIPP-lined) shall be made with a stainless steel sleeve non-shear mission coupling to be furnished by Contractor, such as Series 5000 as manufactured by Fernco.

Television Inspection of Installed Sewers

The Contractor shall furnish all necessary labor, supervision, power equipment and material to clean sewer pipe lines and to provide internal television inspection of all installed sewer pipelines, including laterals, in the presence of the Engineer. If, during the inspection, the Engineer observes visibly leaking joints, cracked pipe, grade misalignment, or joint separation, the problem items shall be repaired and reinspected by internal television inspection at the expense of the Contractor until the Engineer approves the installation.

One copy of the operator's logs shall be submitted to the Engineer at the end of each day. Following completion of the televising work, the Contractor shall submit two (2) copies of typewritten reports to the Engineer. The reports shall contain the Owner's name, date of the inspection, location of the sewer line, size and type of pipe, length of pipe sections, total footage of the line, line identification, the direction of flow, and direction of camera penetration. The report shall indicate the location of any defects and the nature of the defects, such as leaking joints and structurally defective pipe. In addition, the condition of each manhole shall be noted and any defects reported.

Following the completion televising, the Contractor shall submit one copy of video tape recordings of the internal sewer inspection. The record shall be submitted on a DVD disk or flash drive. The disk shall be labeled to show the line identification and the range of tape use for each line. The Contractor shall verify the quality of the tape from time to time. If the tape is of poor quality, because of improper equipment operation or tape quality, the lines shall be re-inspected, after correction of defect, as a part of this pay item.

This televising work shall not be paid for separately but shall be considered included in the cost of SANITARY SEWER.

Testing

Testing for acceptance of sanitary sewers shall be done in accordance with Article 31-1.12 of the Water and Sewer Main Specifications. Method A (Exfiltration of air under pressure) and Method D (Deflection) shall be used.

Basis of Payment

This work will be paid at the contract unit price per lineal foot, for SANITARY SEWER, of the pipe inside diameter specified, measured in place, which price shall be full compensation for all work and materials required for a completed sewer line including granular pipe bedding, haunching, and 6" cover material, installation of non-shear couplings, cleanout connections to manholes and sewers, removing material from roadway due to heavy rain forecasted, televising and reporting, testing and other items necessary to provide a complete installation.

SANITARY SEWER, SPECIAL

Description
This work shall consist of the installation of 10" sanitary sewer siphons across the West Branch of the DuPage River between SANITARY MANHOLE, SPECIAL and SANITARY MANHOLE, 6' DIAMETER. This work shall consist of furnishing and installing Class 52 ductile iron pipe of the size specified for construction of siphon-type sanitary sewer lines at the locations, profiles and details shown in these Contract Documents.

River Control
The sanitary sewer shall be installed during Stage I – Phase I and Stage 1 – Phase II as shown of the Suggested Sequence of Work, Structure No. 022-6749 in the plans. The north half of Sanitary Sewer, Special will be constructed within the Coffer Dam during Stage I – Phase I beginning at the outside wall of SANITARY MANHOLE, 6' DIAMETER and will terminate with a water-tight plug. The south half of Sanitary Sewer, Special will be constructed within the Coffer Dam during Stage I – Phase II, beginning at the water-tight plug and terminating at the outside wall of SANITARY MANHOLE, SPECIAL.

Excavation
Excavation shall include removal of the riverbed material and ROCK EXCAVATION as shown on the details in the plans. Riverbed removal shall be considered included in the cost of SANITARY SEWER, SPECIAL. ROCK EXCAVATION shall be paid for separately under that pay item.

Materials
Pipe shall be Class 52 ductile iron pipe, 250 pressure class minimum, conforming to ANSI/AWWA C151/A21.51-02 (or latest edition).

All ductile iron pipe and/or fittings shall have an interior cement mortar lining and bituminous seal coat conforming to the requirements of ANSI/AWWA C104/A21.4-03 (or latest edition).

Joints for water main shall be restrained joints between the structures. Restrained joint pipe shall be 250 pressure class, minimum Class 52 ductile iron pipe with manufacturer designed restrained flexible joints and smoothly contoured bells. Joints shall be boltless, flexible, restrained and shall be U.S Pipe- TR Flex or American- Flex Ring Joints. Restrained joint gaskets are not acceptable alternatives.

Stainless steel nuts, bolts/T-bolts, and washers, Type 304 or better, will be required on all water main installations. This would apply to hydrants, tapping sleeves, valves, fittings, restraint, and other appurtenances buried or in valve vaults. Mechanical joints and restraint glands require 304 stainless steel T-bolts. An anti-seize compound shall be factory applied to nuts or bolts – any damage to this coating shall be repaired with field applied anti-seize compound that is a molybdenum-base lubricant, Bostik Never-Seez.

Mechanical joints shall be used at all fitting locations. Restraint of mechanical joints shall be incorporated into the follower gland and shall include a mechanism to impart multiple wedging action that increases with increasing pipe pressure. Follower glands with restraining mechanisms shall be manufactured of ductile iron conforming to ASTM A536. Dimensions of the follower gland

shall conform to and shall be compatible with mechanical joints conforming to ANSI/AWWA C111/A21.11. The mechanical joint restraint device shall have a working pressure of 250 psig and a minimum safety factor of 2:1. All retainer glands when required to restrain valves, fittings, hydrants, and pipe joints shall be mechanical joint wedge action type MEGALUG 1100 Series as manufactured by EBBA Iron, Inc. or UNI-FLANGE BLOCKBUSTER 1400 SERIES as manufactured by Ford Meter Box Co. and shall be for use on ductile iron pipe conforming to ANSI/AWWA C151/A21.51, for nominal pipe sizes 3" through 48".

Fittings shall be cement lined, tar coated ductile iron with mechanical joints rated 250 psi per AWWA C110/ANSI 21.10. (American, U.S. Pipe). Ductile iron compact fittings 3 inches to 24 inches in diameter shall be in accordance with ANSI/AWWA C153/A21.53-00 (or latest edition).

The sewer main shall be installed as detailed on the plans and in accordance with the applicable provisions of the Standard Specifications for Water and Sewer Main Construction in Illinois.

Backfill and Concrete Encasement
The sewer main piping shall be installed in concrete encasement as shown on the plan details with a depth of 24” minimum below the existing top of bedrock elevation. Additional backfill of excavated bedrock shall be added above the concrete encasement to the riverbed elevation. Additional backfill of excavated bedrock shall be considered included in this pay item. The cost of rock excavation shall be paid for as ROCK EXCAVATION.

Television Inspection of Installed Sewers
The Contractor shall furnish all necessary labor, supervision, power equipment and material to clean sewer pipe lines and to provide internal television inspection of all installed sewer pipelines, in accordance with the special provision for SANITARY SEWER.

This televising work shall not be paid for separately but shall be considered included in the cost of SANITARY SEWER, SPECIAL.

Testing
Testing for acceptance of sanitary sewers shall be done in accordance with Article 31-1.12 of the Water and Sewer Main Specifications. Method A (Exfiltration of air under pressure) shall be used.

Basis of Payment
This work will be paid at the contract unit price per lineal foot, for SANITARY SEWER, SPECIAL, measured in place, which price shall be full compensation for all work and materials required for a completed sewer line as described in this special provision.

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 Portland cement concrete (PCC) according to Sections 353 and 354 of the Standard Specifications or hot-mix asphalt (HMA) according to Sections 355, 356, 406 of the Standard Specifications, and other applicable PCC and 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. The Contractor shall have the option of constructing either material type if both Portland cement concrete and HMA are shown in the plans. The Contractor shall furnish and construct Subgrade Granular Material, Type B, 4" under the temporary pavement in accordance with the Standard Specifications.

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

The removal of the temporary pavement shall conform to Section 440 of the Standard Specifications.

Method of Measurement: Temporary pavement will be measured in place and the area computed in square yards (square meters). The Subgrade Granular Material, Type B, 4" will not be measured separately for payment, but shall be included within the contract unit price for TEMPORARY PAVEMENT.

Basis of Payment: This work will be paid for at the contract unit price per square yard for TEMPORARY PAVEMENT.

Removal of the temporary pavement will be paid for at the contract unit price per square yard for TEMPORARY PAVEMENT REMOVAL.

TIMBER RETAINING WALL REMOVAL

Description: This work shall consist of the removal, offsite disposal, and grading of timber retaining walls according to Section 501 of the Standard Specifications, as detailed on the plans and as modified herein.

The existing timber retaining wall designated for removal on the plans shall be removed entirely, as required for the construction of the new wall.

Method of Measurement. The timber retaining wall removal will be measured for payment per FOOT along the top of the existing wall.

Basis of Payment: This work shall be paid for at the contract unit price per FOOT for TIMBER RETAINING WALL REMOVAL.

BRICKPRINT FOR CROSSWALKS

Description. This work consists of construction of a hot-applied polymer resin based compound in crosswalks and surface areas. The hot-applied patterned textured paving shall consist of applying a pattern that is imprinted with a mold to create the appearance of hand laid decorative paving. The treatment shall be applied according to the Manufacturer's Specifications and shall be done only if directed by the Engineer and only at locations designated by the Engineer.

Hot-applied resin, “Imprint” as supplied by Traffic Calming USA, is installed at ¾ inch thick, shall be a full-thickness colored, hot-applied resin developed specifically for use on Hot-Mix Asphalt or Concrete. The material shall consist of a mixture of graded course aggregates, recycled glass, graded silica sand, fibers, and a polymer resin binder that produces a product with superior adhesion, flexibility and abrasion resistance characteristics as well as color stability, chemical resistance and scrub ability.

The hot-applied resin is to be installed flush or level with the pavement surface. The contractor shall be required to mill 3/4 to one inch deep from the existing surface and fill the milled-out area with the hot-applied resin. The milling process consists of removing the existing asphalt or concrete with a skid steer machine and cold planer. Once milled, the edges of the crosswalk are to be sawn cut to form a neat and straight edge.

The area of the crosswalk is to be cleaned and all debris removed. The pavement surfaces shall be dry and free of sand, dirt, grease, oil and any other contaminants that may interfere with the bond between the treatment material and any other surfaces. If moisture is present on the surface then use propane torch to remove moisture until dry and clean.

The hot-applied mixed resin should not be installed when precipitation is expected or temperatures are below 32 degrees Fahrenheit. The hot-applied resin shall be prepared for installation utilizing a heating kettle specifically designed for hot-applied mixed resin treatment to 385°F to 420°F. The hot-applied resin shall be uniformly distributed onto the pavement surface by means of finishing irons pre-heated to >800°F that are used to smooth and level the materials to an approximate depth of ¾ inch deep. No additional compaction is required. The material shall be level with the surrounding asphalt. Immediately apply dry sand over the hot-applied resin to cover surface at an approximate rate of 1.75 lb/sq. ft.

Imprinted pattern to generally follow a 45° herringbone pattern with a single soldier course around the perimeter. Place the mold into the semi molten material immediately after the sand application using an approved mold capable of providing a 5/16 +/-1/16 inch deep impression in accordance to the design details shown on the plans. The hot applied resin can be opened to traffic after placement when cool and hard; typically, One hour from installation. All installations of “Imprint” are to be undertaken by only certified installers.

Method of Measurement. The work will be measured in square yards. No deduction will be made for the area(s) occupied by manholes, inlets, drainage structures, bollards or by any public utility appurtenances within the area.

Basis of Payment. This work will be paid for at the contract unit price per square yard for STAMPED ASPHALT CROSSWALK.

WOODEN FENCE TO BE REMOVED AND REPLACED

Description: This work shall consist of the complete removal and satisfactory replacement of existing wooden fencing at the location(s) shown on the plans.

The existing wooden fence and gate, including slats, posts, braces, concrete, and hardware, shall be completely removed, and disposed of by the Contractor.

The replacement wooden fence and gate shall be constructed in accordance with Section 641 of the Standard Specifications.

Basis of Payment: The removal of the wooden fence shall be paid for at the contract unit price per foot for WOODEN FENCE REMOVAL. The replacement of the wooden fence shall be paid for at the contract unit price per foot for SIGHT SCREEN (WOODEN FENCE) TYPE P 6'. The replacement of the wooden fence gate shall be paid for at the contract unit price per each for WOOD GATE ASSEMBLY SPECIAL

TEMPORARY TRAFFIC SIGNAL TIMING

Effective: May 22, 2002
Revised: July 1, 2015
890.02TS

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 Closed Loop Traffic signal Systems for District One of the Illinois Department of Transportation. The Contractor shall contact the Traffic Signal Engineer at (847) 705-4424 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 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.

GENERAL ELECTRICAL REQUIREMENTS

Effective: June 1, 2021

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 Traffic Operations Construction Submittals Application (TOCS) system the manufacturer's product data (for standard products and components) and detailed shop drawings (for fabricated items). 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.

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.

For further information and requirements regarding the TOCS system, the Contractor should reference the *TOCS Contractors User Guide*.

The submittal shall be properly identified by route, section, county, and contract number.

The Contractor shall have reviewed the submittal material and affixed his/her stamp of approval, with date and signature, for each individual item.

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.

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", 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" 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 lighting and/or 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 lighting and/or traffic control systems which may be affected by the work

Marking of Existing Cable Systems. The party responsible for maintenance of any existing lighting and/or traffic control 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.

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
- 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.

ITS. The following test shall be made in addition to the lighting system test above.

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. The loop and lead-in circuit shall have an inductance between 20 and 2500 microhenries. The resistance to ground shall be a minimum of 50 megohms under any conditions of weather or moisture. The quality factor (Q) shall be 5 or greater.

Fiber Optic Systems. Fiber optic testing shall be performed as required in the fiber optic cable special provision and the fiber optic splice special provision.

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 through TOCS, on CD-ROM as well as hardcopy's 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 the respective pay item number. Specific part or model numbers of items which have been selected shall be clearly visible. Hard copies of the catalog are not required with this submittal.

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 luminaires numbered and clearly identified for each circuit.

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 of the final documentation shall be submitted. The identical material shall also be submitted through the TOCS system 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.
- 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.

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

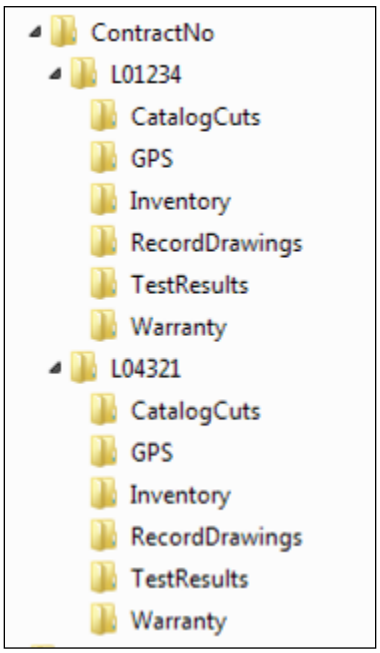
A spreadsheet template will be available from the Engineer for use by the Contractor.

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 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.

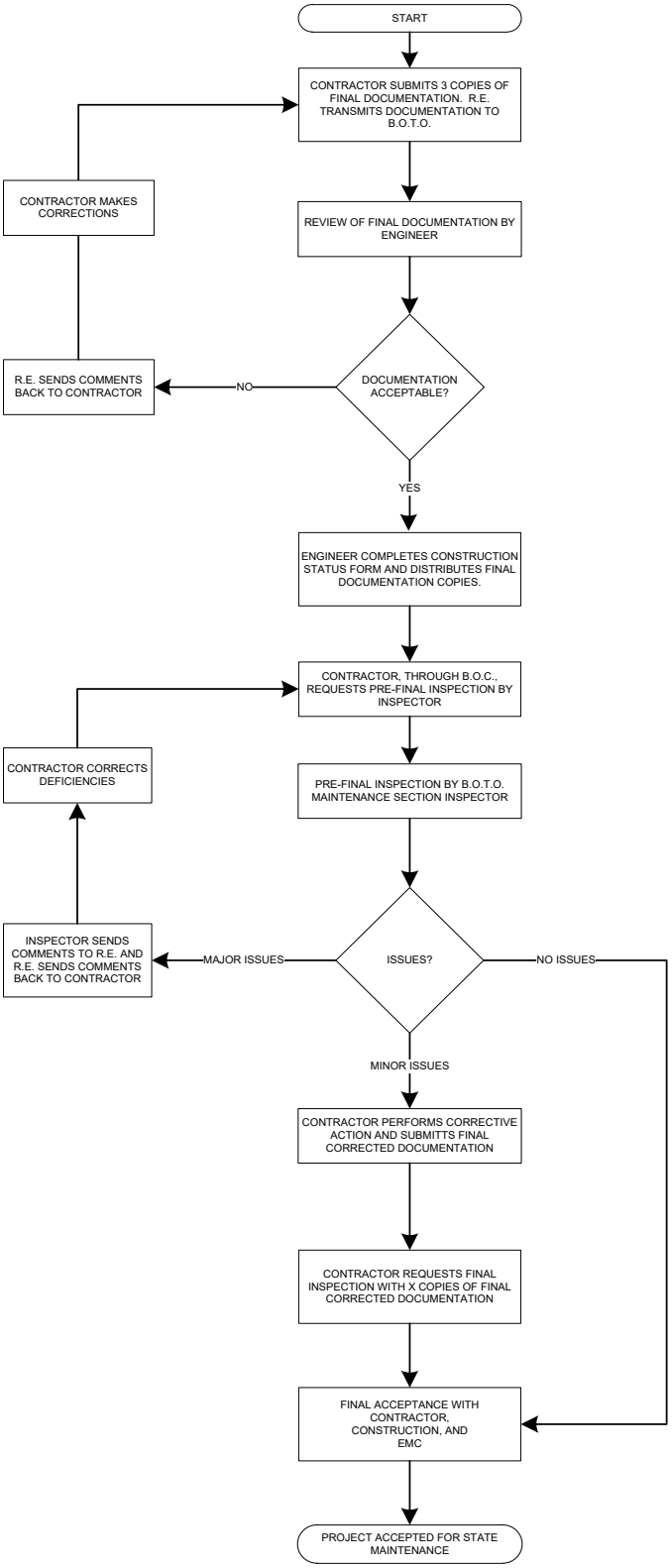
The Final Acceptance Documentation Checklist shall be completed and is contained elsewhere herein.

All CD's 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.


START
CONTRACTOR SUBMITS 3 COPIES OF FINAL DOCUMENTATION. R.E. TRANSMITS DOCUMENTATION TO B.O.T.O.
REVIEW OF FINAL DOCUMENTATION BY ENGINEER
DOCUMENTATION ACCEPTABLE?
NO
R.E. SENDS COMMENTS BACK TO CONTRACTOR
CONTRACTOR MAKES CORRECTIONS
YES
ENGINEER COMPLETES CONSTRUCTION STATUS FORM AND DISTRIBUTES FINAL DOCUMENTATION COPIES.
CONTRACTOR, THROUGH B.O.C., REQUESTS PRE-FINAL INSPECTION BY INSPECTOR
PRE-FINAL INSPECTION BY B.O.T.O. MAINTENANCE SECTION INSPECTOR
ISSUES?
MAJOR ISSUES
INSPECTOR SENDS COMMENTS TO R.E. AND R.E. SENDS COMMENTS BACK TO CONTRACTOR
CONTRACTOR CORRECTS DEFICIENCIES
NO ISSUES
MINOR ISSUES
CONTRACTOR PERFORMS CORRECTIVE ACTION AND SUBMITTS FINAL CORRECTED DOCUMENTATION
CONTRACTOR REQUESTS FINAL INSPECTION WITH X COPIES OF FINAL CORRECTED DOCUMENTATION
FINAL ACCEPTANCE WITH CONTRACTOR, CONSTRUCTION, AND EMC
PROJECT ACCEPTED FOR STATE MAINTENANCE

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	☐ ☐	☐ ☐
Field Inspection Tests -Voltage -Amperage -Cable Insulation Resistance -Continuity -Controller Ground Rod Resistance (Three Hardcopies & scanned to two CD's)	☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐
GPS Coordinates -Excel file (Check Special Provisions, Excel file scanned to two CD's)	☐	☐
Job Warranty Letter (Three Hardcopies & scanned to two CD's)	☐	☐
Catalog Cut Submittals -Approved & Approved as Noted (Scanned to two CD's)	☐	☐
Lighting Inventory Form (Three Hardcopies & scanned to two CD's)	☐	☐
Lighting Controller Inventory Form (Three Hardcopies & scanned to two CD's)	☐	☐
Light Tower Inspection Form (If applicable, Three Hardcopies & scanned to two CD's)	☐	☐

Three Hardcopies & scanned to two CD's 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.

LOW FLOW WALK

Description: This work consists of furnishing and constructing the necessary components for the Low Flow Walk as detailed and shown on the plans and as directed by the Engineer.
Materials:

The cast in place concrete used for the Low Flow Walk will be per Section 503 of the Standard Specifications.

Reinforcement bars, epoxy coated used in the cast in place concrete will be per Section 508 of the Standard Specifications.

Granular Backfill for Structures for fill within the Low Flow Walk will be per Section 586 of the Standard Specifications.

Construction Requirements: The construction of items included in this reference specification will be in compliance with the respective Sections of the Standard Specifications.

Method of Measurement: This work will be measured for payment in feet of LOW FLOW WALK acceptably furnished and placed within the limits shown on the Plans and as directed by the Engineer. Any additional structure excavation required to construct the LOW FLOW WALK that is not shown on the abutment drawings will not be measured for payment but will be included in the cost of LOW FLOW WALK.

Basis of Payment: This work shall be paid for at the contract unit price per foot for LOW FLOW WALK.

HIGH PERFORMANCE CONCRETE SUPERSTRUCTURE

Description: This work shall consist of the construction of cast-in-place high performance concrete (HPC) structures, according to the applicable portions of Section 503 of the Standard Specifications. The structural members requiring the use of HPC shall be as shown on the plans and shall have a minimum 28-day compressive strength of 6,000 psi with tendon stressing commencing when concrete has been cured to a minimum compressive strength of 4,000 psi and minimum age of 3 days.

Equipment: The Contractor shall have the option of using a vibrating screed in lieu of a finishing machine for the placement of the high performance concrete superstructure as specified per Article 503.03.

Mix Design: The mix design criteria for the high performance concrete structure shall meet the requirements of Article 1020.04 for BS concrete. However, the high performance concrete structure mix design shall be selected from the following table.

Article 1020.05(b) shall apply, except that no reduction in cement content will be allowed.

Mix Design	1*	2*	3*	4*	5*	6*
Cement	264 (445)	264 (445)	264 (445)	264 (445)	323 (545)	323 (545)
Class C Fly Ash	53 (90)	53 (90)	--	--	--	--
GGBF Slag***	--	--	53 (90)	53 (90)	--	--
Microsilica Solids	15 (25)	--	15 (25)	--	15 (25)	--
HRM**	--	16 (27)	--	16 (27)	--	16 (27)
Mortar Factor	0.83-0.86	0.83-0.86	0.83-0.86	0.83-0.86	0.83-0.86	0.83-0.86
W/C Ratio	0.38-0.44	0.38-0.44	0.38-0.44	0.38-0.44	0.38-0.44	0.38-0.44

*All weights in kg/m^3
**HRM – High Reactivity Metakaolin
***GGBF Slag – Ground Granulated Blast-Furnace Slag

The mix design shall be submitted to the Engineer for approval. Trial Batches may be required for mix design verification. After a mix design has been approved, changes shall not be allowed without prior approval by the Engineer.

Mixture approval shall in no manner be construed as acceptance of any mixture produced. Tests at jobsite will determine if a mix design can meet specifications.

Mixing: The mixing requirements shall be according to Article 1020.11(d) and material mixing sequence shall be determined by trial mixtures. The Engineer may require trial batches for changes to the mixing sequence.

Method of Measurement: This work will be measured according to Article 503.21.

Basis of Payment: High performance concrete for cast-in-place structures will be paid for at the contract unit price per cubic yard for HIGH PERFORMANCE CONCRETE SUPERSTRUCTURE.

AVAILABLE REPORTS (D1 LR)

☐ No project specific reports were prepared.

When applicable, the following checked reports and record information is available for Bidders' reference upon request:

☒ Record structural plans

☐ Preliminary Site Investigation (PSI) (IDOT ROW)

☒ Preliminary Site Investigation (PSI) (Local ROW)

☐ Preliminary Environmental Site Assessment (PESA) (IDOT ROW)

☒ Preliminary Environmental Site Assessment (PESA) (Local ROW)

☒ Soils/Geotechnical Report

☒ Boring Logs

☐ Pavement Cores

☐ Location Drainage Study (LDS)

☒ Hydraulic Report

☐ Noise Analysis

☐ Other: _____

Those seeking these reports should request access from:

Diana Decker, PE
Ciorba Group
773.355.2952
ddecker@ciorba.com
Mon-Fri, 8:30A – 4:30P

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 _3_.

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 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.

State of Illinois
Department of Transportation
Bureau of Local Roads and Streets

SPECIAL PROVISION
FOR
INSURANCE

Effective: February 1, 2007
Revised: August 1, 2007

All references to Sections or Articles in this specification shall be construed to mean specific Section or Article of the Standard Specifications for Road and Bridge Construction, adopted by the Department of Transportation.

The Contractor shall name the following entities as additional insured under the Contractor's general liability insurance policy in accordance with Article 107.27:

City of Naperville and its officers, agents, and employees

The entities listed above and their officers, employees, and agents shall be indemnified and held harmless in accordance with Article 107.26.

State of Illinois
DEPARTMENT OF TRANSPORTATION
Bureau of Local Roads & Streets
SPECIAL PROVISION
FOR
LOCAL QUALITY ASSURANCE/ QUALITY MANAGEMENT QC/QA
Effective: January 1, 2022

Replace the first five paragraphs of Article 1030.06 of the Standard Specifications with the following:

"**1030.06 Quality Management Program.** The Quality Management Program (QMP) will be Quality Control / Quality Assurance (QC/QA) according to the following."

Delete Article 1030.06(d)(1) of the Standard Specifications.

Revise Article 1030.09(g)(3) of the Standard Specifications to read:

"(3) If core testing is the density verification method, the Contractor shall provide personnel and equipment to collect density verification cores for the Engineer. Core locations will be determined by the Engineer following the document "Hot-Mix Asphalt QC/QA Procedure for Determining Random Density Locations" at density verification intervals defined in Article 1030.09(b). After the Engineer identifies a density verification location and prior to opening to traffic, the Contractor shall cut a 4 in. (100 mm) diameter core. With the approval of the Engineer, the cores may be cut at a later time."

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

"(2) After final rolling and prior to paving subsequent lifts, the Engineer will identify the random density verification test locations. Cores or nuclear density gauge testing will be used for density verification. The method used for density verification will be as selected below.

Density Verification Method	
☒	Cores
☐	Nuclear Density Gauge (Correlated when paving ≥ 3,000 tons per mixture)

Density verification test locations will be determined according to the document "Hot-Mix Asphalt QC/QA Procedure for Determining Random Density Locations". The density testing interval for paving wider than or equal to 3 ft (1 m) will be 0.5 miles (800 m) for lift thicknesses of 3 in. (75 mm) or less and 0.2 miles (320 m) for lift thicknesses greater than 3 in. (75 mm). The density testing interval for paving less than 3 ft (1 m) wide will be 1 mile (1,600 m). If a day's paving will be less than the prescribed density testing interval, the length of the day's paving will be the interval for that day. The density testing interval for mixtures used for patching will be 50 patches with a minimum of one test per mixture per project.

If core testing is the density verification method, the Engineer will witness the Contractor coring, and secure and take possession of all density samples at the

density verification locations. The Engineer will test the cores collected by the Contractor for density according to Illinois Modified AASHTO T 166 or AASHTO T 275.

If nuclear density gauge testing is the density verification method, the Engineer will conduct nuclear density gauge tests. The Engineer will follow the density testing procedure detailed in the document "Illinois Modified ASTM D 2950, Standard Test Method for Density of Bituminous Concrete In-Place by Nuclear Method".

A density verification test will be the result of a single core or the average of the nuclear density tests at one location. The results of each density test must be within acceptable limits. The Engineer will promptly notify the Contractor of observed deficiencies."

Revise the seventh paragraph and all subsequent paragraphs in Section D. of the document "Hot-Mix Asphalt QC/QA Initial Daily Plant and Random Samples" to read:

"Mixtures shall be sampled from the truck at the plant by the Contractor following the same procedure used to collect QC mixture samples (Section A). This process will be witnessed by the Engineer who will take custody of the verification sample. Each sample bag with a verification mixture sample will be secured by the Engineer using a locking ID tag. Sample boxes containing the verification mixture sample will be sealed/taped by the Engineer using a security ID label."

CiorbaGroup
CONSULTING ENGINEERS

Date Prepared: 07/31/2020

Kane/DuPage County Soil & Water Conservation District Review

City of Naperville, IL

Naperville

8725 W. Higgins Road, Suite 600
Chicago, IL 60631

P 773.775.4009
ciorba.com

Kane-DuPage Soil & Water Conservation District

October 26, 2020

Tony Wolff, P.E., CFM
Ciorba Group, Inc
8725 W. Higgins Rd, Suite 600
Chicago, IL 60631

KDSWCD project number: 20e033
USACE Number: LRC-2020-742
KDSWCD Approval Date: 10/26/2020
Date of Revised Plans: 10/15/2020

Dear Mr. Wolff:

KDSWCD received your soil erosion and sedimentation control plan submittal for the Washington Street Bridge Replacement in Naperville, IL. **KDSWCD approval is contingent upon:**

1. The means, methods, and locations for any dewatering and/or in-stream work should be coordinated with and approved by KDSWCD.

2. If the plans require revision based on the concurrent review by USACE and these revisions result in significant changes to the plans, revised plans must be submitted to KDSWCD for re-review.

This letter and a copy of the stamped plans located at the construction office on site will serve to certify the erosion and sediment control plans meet technical standards. As a reminder, KDSWCD will visit the site several times during the course of construction to assess compliance with the specifications. We will be glad to address specific issues that may arise during the course of construction. This project has a pre-construction deposit in holding, please coordinate a pre-construction meeting with KDSWCD (in email) at least one week prior to the commencement of work for reimbursement.

Sincerely,

Patrick J. McPartlan

Digitally signed by Patrick J. McPartlan
Date: 2020.10.26 16:05:28 -05'00'

Patrick J. McPartlan, CPESC
Resource Conservationist

CC: Brielle Cummings, USACE
Kathleen Chernich, USACE

Soil Erosion and Sediment Control Plan Review
Kane/DuPage Soil and Water Conservation District
(630)-584-7960x3

FOR OFFICE USE ONLY	SWCD Application No.:
Meets technical standards_____	Does not meet technical standards_____
Date all Information received: _____	Reviewed by: _____ Fee Paid: _____ Check No.: __
In-Stream: yes ☐ no ☐	Deposit: yes___ no___ Returned: yes___ no___

	APPLICANT (Owner/Developer)	Erosion Control Consultant/Engineer
Business Name	City of Naperville	Ciorba Group, Inc.
Address City/State/Zip	400 S Eagle St Naperville, IL 60540	8725 West Higgins Road, Suite 600 Chicago IL 60631
Contact Name	Andrew Hynes, PE, PTOE	Tony Wolff
E-Mail Address	hynesa@naperville.il.us	twolff@ciorba.com
Phone	630-548-2958	773-355-2961
Fax		773-775-4014

Current Project Name and Phase number: Washington Street Bridge Replacement **Location (Municipality):** Naperville

Job site contact person: TBD **E-Mail Address:** _____

On site Contact's Phone number: (_____) -_____-_____

Village/Municipal contact person: Andrew Hynes, PE, PTOE **Phone #** (630)-548-2958

Township, range, & section: T38N, R9E, S13 **Nearest Intersection:** Washington Street and Aurora Avenue

Proposed land use: Bridge removal and replacement **Acreage of disturbance:** 1.77

Army Corps application number (if applicable): Application to be submitted

Construction start date: April 2021 **Anticipated construction completion date:** October 2022

The applicant agrees to the following conditions:

1. Submit all required information listed on the following pages for each phase of development, regarding the soil erosion and sediment control (SE/SC) plan. Include 3 sets of drawings. One stamped/approved copy will be returned and is to be kept at the project site.
2. Upon submittal of this application, pay the applicable fee (fee worksheet attached), in accordance with total acres of disturbance to the original topography and/or vegetation, in-stream and wetland disturbance, and the length of the project. A refundable pre-construction notification fee will also be included.
3. If the SWCD does not receive all required items within **30 days**, the item that has been submitted may be mailed back to you.
4. Notify representatives of the Soil and Water Conservation District of the pre-construction meeting.
5. Allow SWCD, NRCS, or Army Corps of Engineers District representative the right to conduct on-site investigations throughout all active construction phases to determine whether all necessary SE/SC practices have been installed and are functioning properly.
6. Upon commencement of earthwork or construction, document SE/SC practices with all information being accurate and complete.
7. Comply with the SWCD's written and verbal recommendations regarding:
   A. The SE/SC plan and corrections or changes made thereto.
   B. Installation and maintenance requirements of the SE/SC practices on-site.
8. Pay additional costs incurred by the SWCD in response to repeated non-compliance issues.
9. If any changes occur to the plans, schedules, etc., the applicant shall be responsible for notifying the Soil and Water Conservation District.
10. If SWCD is not contacted (in writing) prior to commencement of construction, the pre-construction notification fee will be forfeited.
11. If construction does not commence within 36 months of plan approval, the project will be closed. Fees will not be returned.

Upon receipt of all required information, the SE/SC plan will be reviewed within **15 working days** and all involved parties will be notified whether or not the plan meets technical standards.

Applicant's Signature: Andrew Hynes / City of Naperville **Date:** 8/3/2020

Table 1	SESC Fee Schedule	Review Fee	Inspect Fee
Section 1	Initial Application Fee		
	Construction Site 0-4 acres	$253	$586
	Construction Site 5-9 acres	$312	$586
	Construction Site 10-14 acres	$409	$1229
	Construction Site 15-19 acres	$449	$1638
	Construction Site 20-29 acres	$468	$2458
	Construction Site 30-39 acres	$508	$2458
	Construction Site 40-49 acres	$546	$2808
	Construction Site 50-59 acres	$587	$3089
	Construction Site 60-69 acres	$624	$4119
	Construction Site 70-79 acres	$643	$4119
	Construction Site 80-89 acres	$702	$4633
	Construction Site 90-99 acres	$742	$4633
	Construction Site 100-199 acres	$780	$5148
	Construction Site 200-299 acres	$839	$6607
	Construction Site 300-399 acres	$917	$6907
	Construction Site 400-499 acres	$955	$7400
**	> 500 acres contact SWCD for a site specific fee		
Section 2	In-Stream or Stream-side work Fee		
	0-2 Month project length	$600	
	2-4 Month project length	$1200	
	4-6 month project length	$1800	
	6-8 month project length	$2400	
	8-10 month project length	$3000	
	10-12 month project length	$3600	
Section 3	Utilities, Railroads, or Linear Projects		
	$360.00 for each wetland impacted/crossed	$360 per wetland	
Section 4	Re-Submittal Fee		
	1/3 of the Original Review Fee	1/3 of Review	
Section 5	Re-Approval Fee		
	$95.00	$95	
Section 6	Non Compliance Fee		
	Will be notified by letter-Billable at	$80/hr	
Section 7	Pre-Construction Notification Fee (Projects 1 acre +)		
	Refunded upon written notice of construction start date	$500	

For fee calculator, see next page.

For projects > 500 acres or any other unique project as determined by the SWCD Board of Directors, a modified fee schedule may be developed on an individual basis, based upon the size, complexity, and duration. **ALL FEES ARE SUBJECT TO YEARLY INCREASES.

SEND REQUIRED INFORMATION WITH FEE PAYABLE TO:

Kane/DuPage Soil and Water Conservation District Hours: M-F 8:00 a.m. - 4:30 p.m.
2315 Dean Street, Suite 100 Phone: 630-584-7961 x3
St. Charles, IL 60175 Fax: 630-584-9534

Fee Calculator and Worksheet

Step 1: Review Fee			
Acres of disturbance*		1.77	Line 1
Enter review fee using table 1	$	253	Line 2
Step 2: Inspection Fee **MUST ENTER AT LEAST 1 YEAR IN LINE 3**			
Length of project (whole years – round up)		2	Line 3
Enter inspection fee using table 1	$	586	Line 4
Multiply line 3 and line 4	$	1,172	Line 5
Step 3: In-Stream or Stream-Side Work Fee (If not applicable, enter $0 in line 7 and go to step 4)			
Length of Work (months – round up)		11	Line 6
Enter fee using table 2	$	3,600	Line 7
Step 4: Linear Project (If not applicable, enter 0 in line 8 and go to step 5)**			
Enter the number of impacted wetlands on line 8		1	Line 8
Wetland impact fee	$	360	Line 9
Multiply line 8 and line 9	$	360	Line 10
Step 5: Total Fee			
Pre-construction notification fee for projects 1 acre+ (Refundable)	$	500.00	Line 11
Sum Lines 2, 5, 7, 10 & 11	**$**	$5,885.00	Line 12

***For all projects above 500 acres in size or any other unique project as determined by the KDSWCD Board of Directors, a modified fee schedule will be developed on an individual basis, based upon the size, scope, complexity, and duration of the project.*

***Linear projects refer to roadway or utility projects*

Please remit this worksheet with your payment.

Total Fee = Review Fee + Inspect fee + In-Stream Fee* + Wetland Impact Fee* + Pre-construction notice fee

*if applicable

SitePlanChecklist

The soil erosion and sediment control plan cannot be reviewed until all of the following information is submitted for each upcoming active construction phase:

1. Existing site conditions and natural resources present, including:

- [✓] Site boundaries and adjacent lands that accurately identify site location
- [✓] Buildings, roads and utilities
- [✓] Topography, vegetation, drainage patterns, sub-watershed delineation, critical erosion areas, and any subsurface drainage tiles
- [✓] Wetland and floodplain delineation - Please show the boundaries on the construction plans.
- [✓] Adjacent areas that affect or are affecting the project site, e.g. drainage onto or through the site affecting wetlands, streams, lakes, and drainage areas downstream.
- [✓] Vicinity map.
- [✓] Show areas where trees and vegetation are to be preserved.
- [✓] Map legend, including north arrow and scale on all materials submitted.

2. Final site conditions, including:

- [✓] An accurate depiction of post-construction appearance - e.g. utilities, roads, buildings, open space
- [✓] Locations, dimensions, cross sections and elevations of all (temporary and permanent) storm water management facilities (including sediment basins), plus inlet and outlet locations Surface flow direction, including sheet flow and concentrated flow direction
- [✓] Post-construction topography, **final contours should be easily distinguished** (2 foot contour is preferred) including sub-watershed delineations.

3. A complete soil erosion and sediment control plan, including:

- [✓] Location and detailed drawings of all permanent and temporary soil erosion and sediment control practices.
- [✓] A schedule outlining the installation of the practices with the responsible parties identified
- [✓] Inspection, and maintenance schedules with responsible parties identified
- [✓] Seeding information: rates, species, dates, fertilization, temporary or permanent
- [✓] Location and dimension of all temporary soil and aggregate stockpiles

4. Locations, dimension & phase timeline of all land disturbing activities, including:

- [✓] Designate construction limits, areas that will be disturbed and areas of wetland fill
- [✓] Describe grading and building schedule and phasing timeline
- [✓] Create and Submit a construction sequence for any in-stream work and/or critical areas

NarrativeChecklist

The soil erosion and sediment control plan cannot be reviewed until all of the following information is submitted for each upcoming active construction phase:

☑ **Project description -** Briefly describes the nature and purpose of the land disturbing activity, and the area (acres) to be disturbed.

☑ **Existing site conditions -** A description of the existing topography, vegetation, drainage ways, subsurface drain tile, buildings, roads and utilities.

☑ **Adjacent areas -** A description of neighboring areas such as streams, lakes, residential areas, roads, etc. which might be affected by the land disturbance - Describe any adjacent or neighboring activities that may affect the soil erosion and sediment control plan.

☑ **Off-site areas-** Will any other areas be disturbed? Describe any off-site land disturbing activities.

☑ **Critical areas -** A description of areas on the site that have potentially serious problems. For example, steep or long slopes, channels, intermittent streams, and side hill seeps.

☑ **Soil erosion and sediment control measures-** A description of the methods which will be used to control erosion and sedimentation on the site - Control methods should meet the standards in section 4 of the Illinois Urban Manual.

☑ **Construction Sequence -** A sequence of events for construction in and near creeks, streams, or other critical areas.

☑ **Permanent stabilization -** A brief description including specifications of how the site will be stabilized after construction is completed.

☑ C**alculations -** Detailed calculations for the design of temporary sediment basins, permanent storm water detention basins, diversions, channels, etc. Include pre and post development runoff.

☑ **Detail drawings -** Include detail drawings form the Illinois Urban Manual. Any structural practices used that are not referenced to the Illinois Urban Manual or local handbooks should be explained and illustrated with detail drawings.

☑ **Operation and Maintenance -** Provide a schedule of maintenance for all temporary and permanent erosion and sediment control practices to ensure that they perform properly. Identify the parties responsible for maintenance.

CiorbaGroup
CONSULTING ENGINEERS

Date Prepared: 07/31/2020

Application for Section 404 Permit Authorization

City of Naperville, IL

Naperville

8725 W. Higgins Road, Suite 600
Chicago, IL 60631

P 773.775.4009
ciorba.com

DEPARTMENT OF THE ARMY
CHICAGO DISTRICT, CORPS OF ENGINEERS
231 SOUTH LASALLE STREET
CHICAGO, ILLINOIS 60604-1437

REPLY TO
ATTENTION OF:

September 18, 2020

Operations Division
Regulatory Branch
LRC-2020-742

SUBJECT: Authorization for 0.01 acres of impact to the West Branch DuPage River for Washington Street Bridge Replacement in Naperville, DuPage County, Illinois (Latitude 41.77045, Longitude -88.1481)

Andrew Hynes, PE, PTOE
City of Naperville
400 South Eagle Street
Naperville, Illinois 60540

Dear Mr. Hynes:

This office has verified that your proposed activity complies with the terms and conditions of Regional Permit 3 and the General Conditions for all activities authorized under the Regional Permit Program.

This verification expires three (3) years from the date of this letter and covers only your activity as described in your notification and as shown on the plans entitled "Washington Street Bridge Water of The U.S. Impact Exhibit" dated 7/31/2020 prepared by Ciorba Group. Caution must be taken to prevent construction materials and activities from impacting waters of the United States beyond the scope of this authorization. If you anticipate changing the design or location of the activity, you should contact this office to determine the need for further authorization.

Please be aware that the activity may not be completed until you submit the following information to our office:

1. Prior to the commencement of any work, you shall receive a determination by Kane/DuPage County Soil and Water Conservation District that the Soil Erosion and Sediment Control (SESC) plans meet technical standards.

Upon receipt of the above information, the activity may be completed without further authorization from this office provided the activity is conducted in compliance with the terms and conditions of the RPP, including conditions of water quality certification issued under Section 401 of the Clean Water Act by the Illinois Environmental Protection Agency (IEPA). If the design, location, or purpose of the project is changed, you should contact this office to determine the need for further authorization

The following special conditions are a requirement of your authorization:

1. You shall undertake and complete the project as described in the plans titled, "Washington Street Bridge Water of The U.S. Impact Exhibit" dated 7/31/2020 prepared by Ciorba Group, including all relevant documentation to the project plans as proposed.

2. 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 Kane/DuPage County Soil and Water Conservation District's (SWCD) written and verbal recommendations regarding the soil erosion and sediment control (SESC) plan and the installation and maintenance requirements of the SESC practices on-site.

    a. You shall schedule a preconstruction meeting with SWCD to discuss the SESC plan and the installation and maintenance requirements of the SESC practices on the site. You shall contact the SWCD at least 10 calendar days prior to the preconstruction meeting so that a representative may attend.
    b. You shall notify the SWCD of any changes or modifications to the approved plan set. Field conditions during project construction may require the implementation of additional SESC measures. If you fail to implement corrective measures, this office may require more frequent site inspections to ensure the installed SESC measures are acceptable.
    c. Prior to commencement of any in-stream work, you shall submit constructions plans and a detailed narrative to the SWCD that disclose the contractor's preferred method of cofferdam and dewatering method. Work in the waterway shall NOT commence until the SWCD notifies you, in writing, that the plans have been approved.

3. Under no circumstances shall the Contractor prolong final grading and shaping so that the entire project can be permanently seeded at one time. Permanent stabilization within the wetland and stream buffers identified in the plans shall be initiated immediately following the completion of work. Final stabilization of these areas should not be delayed due to utility work to be performed by others.

4. Please note that this site is within the aboriginal homelands of several American Indian Tribes. If any cultural, archaeological or historical resources are unearthed during activities authorized by this permit, work in that area must be stopped immediately and the Corps, State Historic Preservation Office and/or Tribal Historic Preservation Office must be contacted for further instruction. The Corps will initiate the coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing on the National Register of Historic Places.

5. You are responsible for all work authorized herein and for ensuring that all contractors are aware of the terms and conditions of this authorization.

6. A copy of this authorization must be present at the project site during all phases of construction.

7. You shall notify this office of any proposed modifications to the project, including revisions to any of the plans or documents cited in this authorization. You must receive approval from this office before work affected by the proposed modification is performed.

8. You shall notify this office prior to the transfer of this authorization and liabilities associated with compliance with its terms and conditions.

9. Work in the waterway should be timed to take place during low or no-flow conditions. Low flow conditions are flow at or below the normal water elevation.

10. The plan will be designed to allow for the conveyance of the 2-year peak flow past the work area without overtopping the cofferdam. The Corps has the discretion to reduce this requirement if documented by the applicant to be infeasible or unnecessary.

11. Water shall be isolated from the in-stream work area using a cofferdam constructed of non-erodible materials (steel sheets, aqua barriers, rip rap and geotextile liner, etc.). Earthen cofferdams are not permissible.

12. The cofferdam must be constructed from the upland area and no equipment may enter flowing water at any time. If the installation of the cofferdam cannot be completed from shore and access is needed to reach the area to be coffered, other measures, such as the construction of a causeway, will be necessary to ensure that equipment does not enter the water. Once the cofferdam is in place and the isolated area is dewatered, equipment may enter the coffered area to perform the required work.

13. If bypass pumping is necessary, the intake hose shall be placed on a stable surface or floated to prevent sediment from entering the hose. The bypass discharge shall be placed on a non-erodible, energy dissipating surface prior to rejoining the stream flow and shall not cause erosion. Filtering of bypass water is not necessary unless the bypass water has become sediment-laden as a result of the current construction activities.

14. During dewatering of the coffered work area, all sediment-laden water must be filtered to remove sediment. Possible options for sediment removal include baffle systems, anionic polymers systems, dewatering bags, or other appropriate methods. Water shall have sediment removed prior to being re-introduced to the downstream waterway. A stabilized conveyance from the dewatering device to the waterway must be identified in the plan. Discharge water is considered clean if it does not result in a visually identifiable degradation of water clarity.

15. The portion of the side slope that is above the observed water elevation shall be stabilized as specified in the plans prior to accepting flows. The substrate and toe of slope that has been disturbed due to construction activities shall be restored to proposed or pre-construction conditions and fully stabilized prior to accepting flows.

This verification does not obviate the need to obtain all other required Federal, state, or local approvals before starting work. Please note that Section 401 Water Quality Certification has been issued by IEPA for this RP. If you have any questions regarding Section 401 certification, please contact Mr. Darin LeCrone at IEPA Division of Water Pollution Control, Permit Section #15, by telephone at (217) 782-0610.

Once you have completed the authorized activity, please sign and return the enclosed compliance certification. If you have any questions, please contact Ms. Brielle Cummings of my staff by telephone at (312) 846-5545, or email at Brielle.K.Cummings@usace.army.mil.

Sincerely,

MCLAURIN.DIEDRA.L.1230340362

Digitally signed by MCLAURIN.DIEDRA.L.1230340362
Date: 2020.09.18 13:46:18 -05'00'

Diedra L. McLaurin
Team Leader, West Section
Regulatory Branch

Enclosures

Copy Furnished:

Illinois Department of Natural Resources/OWR (Bill Boyd)
DuPage County Stormwater Management (Jenna Fahey)
Kane/DuPage SWCD (Patrick McPartlan)
Ciorba Group, Inc. (Tony Wolff)

PERMIT COMPLIANCE

CERTIFICATION

Permit Number: LRC-2020-742

Permittee: Andrew Hynes, PE, PTOE
City of Naperville

Date: September 18, 2020

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

Upon 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:

U.S. Army Corps of Engineers
Chicago District, Regulatory Branch
231 South LaSalle Street, Suite 1500
Chicago, Illinois 60604-1437

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.

JOINT APPLICATION FORM FOR ILLINOIS

ITEMS 1 AND 2 FOR AGENCY USE

1. Application Number	2. Date Received

3. and 4. (SEE SPECIAL INSTRUCTIONS) NAME, MAILING ADDRESS AND TELEPHONE NUMBERS

3a. Applicant's Name:	3b. Co-Applicant/Property Owner Name (if needed or if different from applicant):	4. Authorized Agent (an agent is not required):
Andrew Hynes, PE, PTOE		Tony Wolff
Company Name (if any) : City of Naperville	Company Name (if any):	Company Name (if any): Ciorba Group, Inc.
Address: 400 S Eagle St Naperville, IL 60540	Address:	Address: 8725 W. Higgins Road, Suite 600 Chicago, IL 60631
Email Address: hynesa@naperville.il.us	Email Address:	Email Address: twolff@ciorba.com
Applicant's Phone Nos. w/area code Business: 630.548.2958 Residence: Cell: Fax:	Applicant's Phone Nos. w/area code Business: Residence: Cell: Fax:	Agent's Phone Nos. w/area code Business: 733-355-2961 Residence: Cell: 847-910-2082 Fax:

STATEMENT OF AUTHORIZATION

I hereby authorize, Tony Wolff / Ciorba Group to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

Andrew Hynes / City of Naperville — Applicant's Signature

8/3/2020 — Date

5. ADJOINING PROPERTY OWNERS (Upstream and Downstream of the water body and within Visual Reach of Project)

Name	Mailing Address	Phone No. w/area code
a.		
b.		
c.		
d.		

6. PROJECT TITLE:
Washington Street Bridge

7. PROJECT LOCATION:
Washington Street between Chicago Avenue and Aurora Avenue

LATITUDE: 41.77045 °N	UTMs Northing: Easting:				
LONGITUDE: -88.14810 °W					
STREET, ROAD, OR OTHER DESCRIPTIVE LOCATION	LEGAL DESCRIPT	QUARTER	SECTION	TOWNSHIP NO.	RANGE
Washington Street between Chicago Ave. and Aurora Ave.		SE	13	38N	9E

☒ IN OR ☐ NEAR CITY OF TOWN (check appropriate box)
Municipality Name: City of Naperville

COUNTY	STATE	ZIP CODE	WATERWAY	RIVER MILE (if applicable)
DuPage	IL	60540	West Branch of the DuPage River	

Revised 2010

☒ Corps of Engineers ☐ IL Dep't of Natural Resources ☐ IL Environmental Protection Agency ☐ Applicant's Copy

8. PROJECT DESCRIPTION (Include all features):

The City of Naperville is proposing to replace the existing Washington Street bridge located in downtown Naperville, in DuPage County. The bridge crosses West Branch of DuPage River between Aurora Avenue and Chicago Avenue with a low flow riverwalk located on the south side of the bridge. This project will also include roadway resurfacing, realignment of the storm sewers, sanitary sewers, water mains and other utility relocations near the vicinity of the bridge.

9. PURPOSE AND NEED OF PROJECT:

The existing Washington Street bridge over West Branch of the DuPage River is structurally deficient, functionally obsolete and has a sufficiency rating of 9.5. The primary purpose of this project is to replace the bridge, with improvements of roadway geometry in the near vicinity of the bridge that satisfies future traffic demands and enables non-motorized mobility.

COMPLETE THE FOLLOWING FOUR BLOCKS IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

10. REASON(S) FOR DISCHARGE:

Discharge to the river is due to construction of proposed bridge abutments and granular backfill required to fill the area between the back of the proposed abutment and the front of the existing abutment.

11. TYPE(S) OF MATERIAL BEING DISCHARGED AND THE AMOUNT OF EACH TYPE IN CUBIC YARDS FOR WATERWAYS:

TYPE: Concrete - 12.5 ; Structural Granular Backfill - 11.4

AMOUNT IN CUBIC YARDS:

23.9 cu yd

12. SURFACE AREA IN ACRES OF WETLANDS OR OTHER WATERS FILLED (See Instructions)

0.009 Acres of Permanent Impact and 0.231 Acres of Temporary Impact

13. DESCRIPTION OF AVOIDANCE, MINIMIZATION AND COMPENSATION (See instructions)

To minimize impacts, the project will limit disturbance to only those locations that are absolutely necessary for the roadway improvements and bridge reconstruction. The proposed improvements will provide adequate floodplain compensatory storage within the vicinity of the project. To avoid temporary impacts, erosion control measures like salt tolerant sodding, inlet filters and erosion control fence will be added down grade of construction boundaries where applicable, and a silt curtain will be placed along the stream banks to avoid erosion and silt transportation from the construction activities.

14. Date activity is proposed to commence: April 2021 — Date activity is expected to be completed: October 2022

15. Is any portion of the activity for which authorization is sought now complete? Yes [ ] No [X] NOTE: If answer is "YES" give reasons in the Project Description and Remarks section. Indicate the existing work on drawings.
Month and Year the activity was completed

16. List all approvals or certification and denials received from other Federal, interstate, state, or local agencies for structures, construction, discharges or other activities described in this application.

Issuing Agency	Type of Approval	Identification No.	Date of Application	Date of Approval	Date of Denial
IEPA	Water Supply Construction	To Be Submitted			
IEPA	Sewer Construction	To be Submitted			
IDNR	Floodway Construction	To Be Submitted			
DuPage County	Stormwater Management	SM2020-0969	July 9, 2020		

17. CONSENT TO ENTER PROPERTY LISTED IN PART 7 ABOVE IS HEREBY GRANTED. Yes [X] No

18. APPLICATION VERIFICATION (SEE SPECIAL INSTRUCTIONS)

Application is hereby made for the activities described herein. I certify that I am familiar with the information contained in the application, and that to the best of my knowledge and belief, such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities.

Andrea Zhou / City of Naperville — Signature of Applicant or Authorized Agent — 8/3/2020 — Date

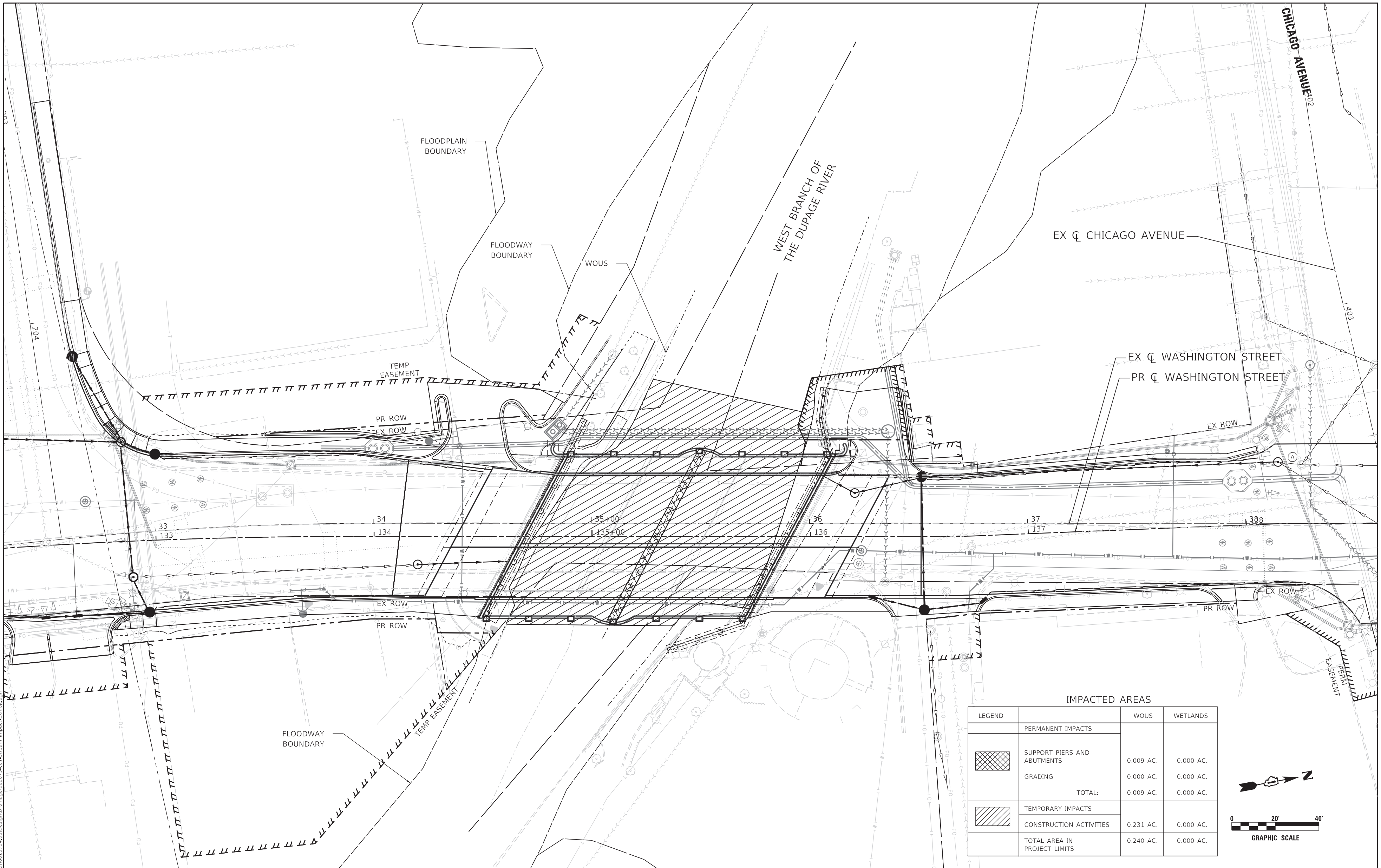
Signature of Applicant or Authorized Agent — Date

Signature of Applicant or Authorized Agent — Date

[X] Corps of Engineers Revised 2010 [ ] IL Dep't of Natural Resources [ ] IL Environmental Protection Agency [ ] Applicant's Copy

SEE INSTRUCTIONS FOR ADDRESS

Exhibit 3 - Waters of the U.S. Location and Impact Exhibits



IMPACTED AREAS

LEGEND		WOUS	WETLANDS
	PERMANENT IMPACTS		
(cross-hatch)	SUPPORT PIERS AND ABUTMENTS	0.009 AC.	0.000 AC.
	GRADING	0.000 AC.	0.000 AC.
	TOTAL:	0.009 AC.	0.000 AC.
(hatch)	TEMPORARY IMPACTS		
	CONSTRUCTION ACTIVITIES	0.231 AC.	0.000 AC.
	TOTAL AREA IN PROJECT LIMITS	0.240 AC.	0.000 AC.

MODEL: $MODELNAME$
FILE NAME: N:\PROJ\0020794.01\Design\Drainage\0020794.01-Stream Impact-Exhibit.dgn

CiorbaGroup
8725 W. Higgins Rd, Ste 600, Chicago, IL 60631
P 773.775.4009 | www.ciorba.com

USER NAME = WaterResources	DESIGNED - RD	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
	DRAWN - DDS	REVISED -	
PLOT SCALE = 40.0000 ' / in.	CHECKED - TW	REVISED -	
PLOT DATE = 7/31/2020		REVISED -	

WASHINGTON STREET BRIDGE
WATERS OF THE U.S. IMPACT EXHIBIT

SCALE: 1" = 20' | SHEET 1 OF 1 SHEETS | STA. 134+00.00 TO STA. 140+16.92

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2552	16-00167-00-BR	DUPAGE	222	1
		CONTRACT NO.		
	ILLINOIS	FED. AID PROJECT		

CiorbaGroup
CONSULTING ENGINEERS

Date Prepared: 01/05/2021

Storm Water Pollution Prevention Plan

City of Naperville, IL

Naperville

8725 W. Higgins Road, Suite 600
Chicago, IL 60631

P 773.775.4009
ciorba.com

Illinois Department of Transportation

Storm Water Pollution Prevention Plan

Route	Marked Route	Section Number
FAU 2552	Washington Street	16-00167-00-BR
Project Number	**County**	**Contract Number**
772J(145)	DuPage	C-91-265-16

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.

Signature	Date
Andrew Hynes, PE	1/6/2021

Print Name	Title	Agency
Andrew Hynes, PE	Deputy City Engineer	City of Naperville

Note: Guidance on preparing each section of BDE 2342 can be found in Chapter 41 of the IDOT Bureau of Design and Environment (BDE) Manual. Chapter 41 and this form also reference the IDOT Drainage Manual which should be readily available.

I. Site Description:

A. Provide a description of the project location; include latitude and longitude, section, town, and range:

Project located at Washington Street between Aurora Avenue and Chicago Avenue, in Naperville, DuPage Co. (T38N, R9E, Sections 13 and 24 and T38N, R10E, Section 18) - STA 31+49.62 (EX) to STA 38+96.31 (EX). Latitude = 41.77045 and Longitude = -88.14810. General Location Map attached.

B. Provide a description of the construction activity which is the subject of this plan. Include the number of construction stages, drainage improvements, in-stream work, installation, maintenance, removal of erosion measures, and permanent stabilization:

The City of Naperville is proposing to replace the existing Washington Street bridge located in downtown Naperville, in Dupage County. The bridge crosses the West Branch of the DuPage River. The project also includes replacement of riverwalk, roadway resurfacing, realignment of storm sewers, sanitary sewers, water main, and other utilities relocation in the vicinity of the bridge. This project will be broken down in 5 stages. The sidewalk outside of the bridge will be located at the back of the curb with a minimum width of 6 ft. The sidewalk across the proposed bridge will be 8 ft. The portion of the Riverwalk impacted by the bridge improvements will be replaced with a raised sidewalk with 8 ft of vertical clearance from the bridge low chord and match the existing width of 5 ft.

Due to the proposed profile of Washington Street being raised and the sag locations north and south of the bridge shifted slightly, the existing drainage will need modification. New catch basins and flanking inlets will be added at these sag locations and new manholes are proposed to collect this drainage into the Washington Street trunk lines. Several existing structures within the proposed pavement will remain in place and the rims will be adjusted to the new elevations. Additionally, the intersection of Aurora Ave and Washington Street will be modified such that the structures at the curb will be reconstructed. These new structures require a few new legs of storm sewers to provide the connections to the existing manholes.

Proposed utilities will be relocated to the east of the bridge structure and buried below the river. Only the electrical conduit for proposed bridge lighting will be attached to the proposed structure.

Installation and maintenance of erosion control measures will include temporary seeding and erosion control blanket in between seasons, erosion control fence, silt curtain at the river banks, and inlet protection in between season, and during the time of construction. Permanent salt tolerant sodding with topsoil and erosion control blanket will be added once construction has ended.

C. Provide the estimated duration of this project:

18 Months

D. The total area of the construction site is estimated to be 2.41 acres.

The total area of the site estimated to be disturbed by excavation, grading or other activities is 1.77 acres.

E. The following are weighted averages of the runoff coefficient for this project before and after construction activities are completed; see Section 4-102 of the IDOT Drainage Manual:

0.9

F. List all soils found within project boundaries; include map unit name, slope information, and erosivity:

223B - Varna silt loam, 2 to 4% slopes
298B - Beecher silt loam, 2 to 4% slopes
3107A - Sawmill silty clay loam, heavy till plain, 0 to 2% slopes, frequently flooded
W - water
Rainfall erosivity factor (R Factor) = 147

G. If wetlands were delineated for this project, provide an extent of wetland acreage at the site; see Phase I report:

There is one WOUS totaling 0.24 acre (West Branch of the DuPage River) within the project limits.

This project will permanently impact 0.009 acres of WOUS, and temporarily impact 0.231 acres of WOUS for a total of 0.24 acres of impact.

H. Provide a description of potentially erosive areas associated with this project:

River banks where retaining walls and abutment are being replaced.

I. The following is a description of soil disturbing activities by stages, their locations, and their erosive factors (e.g., steepness of slopes, length of slopes, etc.):

Soil disturbing activities include removal and replacement of bridge structure abutments, replacement of retaining walls, open cut trench and sewer installation outside of roadway, and partial grading of stream embankment at bridge structure.

J. See the erosion control plans and/or drainage plans for this contract for information regarding drainage patterns, approximate slopes anticipated before and after major grading activities, locations where vehicles enter or exit the site and controls to prevent offsite sediment tracking (to be added after contractor identifies locations), areas of soil disturbance, the location of major structural and non-structural controls identified in the plan, the location of areas where stabilization practices are expected to occur, surface waters (including wetlands) , and locations where storm water is discharged to surface water including wetlands.

K. Identify who owns the drainage system (municipality or agency) this project will drain into:

The City of Naperville owns the storm sewers which discharge into The West Branch of the DuPage River, and sanitary storm sewers which discharge into the MWRD sanitary sewer system.

L. The following is a list of General NPDES ILR40 permittees within whose reporting jurisdiction this project is located:

City of Naperville - Permit No: 0396

M. The following is a list of receiving water(s) and the ultimate receiving water(s) for this site. In addition, include receiving waters that are listed as Biologically Significant Streams by the Illinois Department of Natural Resources (IDNR). The location of the receiving waters can be found on the erosion and sediment control plans:

The West Branch of the DuPage River is the receiving river, and not a biologically significant stream according to IDNR. The ultimate receiving water is Des Plaines River

N. Describe areas of the site that are to be protected or remain undisturbed. These areas may include steep slopes (i.e., 1:3 or steeper), highly erodible soils, streams, stream buffers, specimen trees, natural vegetation, nature preserves, etc. Include any commitments or requirements to protect adjacent wetlands.

For any storm water discharges from construction activities within 50-feet of Waters of the U.S. (except for activities for water-dependent structures authorized by a Section 404 permit, describe: a) How a 50-foot undisturbed natural buffer will be provided between the construction activity and the Waters of the U.S. or b) How additional erosion and sediment controls will be provided within that area.

Only work authorized by Section 404 permit will be done within the the 50-feet buffer.

O. Per the Phase I document, the following sensitive environmental resources are associated with this project and may have the potential to be impacted by the proposed development. Further guidance on these resources is available in Section 41-4 of the BDE Manual.

N/A

☒ 303(d) Listed receiving waters for suspended solids, turbidity, or siltation.
The name(s) of the listed water body, and identification of all pollutants causing impairment:

IL_GBK-05 - West Branch of the DuPage River - Fecal Coliform (2019 DuPage River/ Salt Creek Watershed TMDL Report)

Provide a description of how erosion and sediment control practices will prevent a discharge of sediment resulting from a storm event equal to or greater than a twenty-five (25) year, twenty-four (24) hour rainfall event:

Inlet filters will placed in all open lid drainage structures within the project. A perimeter erosion control barrier will also be placed upstream of runoff that flows into the project area. Floating silt curtains will be placed at the banks of the river within the project limits to capture sediments from the construction that flows into the river.

Provide a description of the location(s) of direct discharge from the project site to the 303(d) water body:

At storm sewer outfalls and overland flow discharging into stream.

Provide a description of the location(s) of any dewatering discharges to the MS4 and/or water body:

Two discharge locations. Northwest and southeast corners of the proposed bridge on Washington Street over the West Branch of DuPage River.

Northwest side of the bridge crossing - 24" outfall at station 136+06, 27.7 LT
Southeast side of the bridge crossing - 18" outfall at station 134+61, 11.4 RT

☐ Applicable Federal, Tribal, State, or Local Programs

N/A

☒ Floodplain

100-year, 500-year

☐ Historic Preservation

N/A

☐ Receiving waters with Total Maximum Daily Load (TMDL) for sediment, total suspended solids, turbidity or siltation

TMDL (fill out this section if checked above)

The name(s) of the listed water body:

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:

Temporary seeding will be placed during construction, as well as erosion control blanket. Permanent salt tolerant

sodding, will be placed once construction is complete.

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:

☐ Threatened and Endangered Species/Illinois Natural Areas (INAI)/Nature Preserves

N/A

☐ Other

N/a

☒ Wetland

Waters of the US

P. The following pollutants of concern will be associated with this construction project:

- ☐ Antifreeze / Coolants
- ☒ Concrete
- ☐ Concrete Curing Compounds
- ☐ Concrete Truck Waste
- ☒ Fertilizers / Pesticides
- ☐ Paints
- ☐ Petroleum (gas, diesel, oil, kerosene, hydraulic oil / fluids)
- ☒ Soil Sediment
- ☐ Solid Waste Debris
- ☐ Solvents
- ☐ Waste water from cleaning construction equipments
- ☐ Other (Specify) _____
- ☐ Other (Specify) _____
- ☐ Other (Specify) _____
- ☐ Other (Specify) _____
- ☐ Other (Specify) _____

II. Controls:

This section of the plan addresses the controls that will be implemented for each of the major construction activities described in Section I.C above and for all use areas, borrow sites, and waste sites. For each measure discussed, the Contractor will be responsible for its implementation as indicated. The Contractor shall provide to the Resident Engineer a plan for the implementation of the measures indicated. The Contractor, and subcontractors, will notify the Resident Engineer of any proposed changes, maintenance, or modifications to keep construction activities compliant with the Permit ILR10. Each such Contractor has signed the required certification on forms which are attached to, and are a part of, this plan:

A. **Erosion and Sediment Controls:** 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.

B. **Stabilization Practices:** Provided below is a description of interim and permanent stabilization practices, including site- specific scheduling of the implementation of the practices. Site plans will ensure that existing vegetation is preserved where attainable and disturbed portions of the site will be stabilized. Stabilization practices may include but are not limited to: temporary seeding, permanent seeding, mulching, geotextiles, sodding, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures. Except as provided below in II.B.1 and II.B.2, stabilization measures shall be initiated **immediately** where construction activities have temporarily or permanently ceased, but in no case more than **one (1) day** after the construction activity in that portion of the site has temporarily or permanently ceases on all disturbed portions of the site where construction will not occur for a period of fourteen (14) or more calendar days.

1. Where the initiation of stabilization measures is precluded by snow cover, stabilization measures shall be initiated as soon as practicable.

2. On areas where construction activity has temporarily ceased and will resume after fourteen (14) days, a temporary stabilization method can be used.

The following stabilization practices will be used for this project:

- [x] Erosion Control Blanket / Mulching
- [ ] Geotextiles
- [ ] Permanent Seeding
- [ ] Preservation of Mature Seeding
- [ ] Protection of Trees
- [x] Sodding
- [x] Temporary Erosion Control Seeding
- [ ] Temporary Turf (Seeding, Class 7)
- [ ] Temporary Mulching
- [x] Vegetated Buffer Strips
- [ ] Other (Specify) _____
- [ ] Other (Specify) _____
- [ ] Other (Specify) _____
- [ ] Other (Specify) _____

Describe how the stabilization practices listed above will be utilized during construction:

Temporary seeding and erosion control blanket will be placed immediately in any area that is scheduled to remain disturbed for longer than 7 days.

Describe how the stabilization practices listed above will be utilized after construction activities have been completed:

Salt tolerant sodding with topsoil will be added in any disturbed area immediately after construction is complete. Vegetated buffer strips will also be added as permanent stabilizing and erosion control measure.

C. **Structural Practices:** Provided below is a description of structural practices that will be implemented, to the degree attainable, to divert flows from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Such practices may include but are not limited to: perimeter erosion barrier, earth dikes, drainage swales, sediment traps, ditch checks, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins. The installation of these devices may be subject to Section 404 of the Clean Water Act.

- [ ] Aggregate Ditch
- [ ] Concrete Revetment Mats
- [ ] Dust Suppression
- [ ] Dewatering Filtering
- [ ] Gabions
- [x] In-Stream or Wetland Work
- [ ] Level Spreaders
- [ ] Paved Ditch
- [ ] Permanent Check Dams
- [x] Perimeter Erosion Barrier
- [ ] Permanent Sediment Basin
- [x] Retaining Walls
- [ ] Riprap
- [ ] Rock Outlet Protection
- [ ] Sediment Trap
- [x] Storm Drain Inlet Protection
- [x] Stabilized Construction Exits
- [ ] Stabilized Trench Flow
- [ ] Slope Mattress
- [ ] Slope Walls
- [ ] Temporary Ditch Check
- [ ] Temporary Pipe Slope Drain
- [ ] Temporary Sediment Basin
- [ ] Temporary Stream Crossing
- [ ] Turf Reinforcement Mats
- [x] Other (Specify) Floating silt fence
- [ ] Other (Specify) _____
- [ ] Other (Specify) _____
- [ ] Other (Specify) _____
- [ ] Other (Specify) _____
- [ ] Other (Specify) _____
- [ ] Other (Specify) _____

Describe how the structural practices listed above will be utilized during construction:

Perimeter erosion control barriers, inlet filters, floating silt fence, and stabilized construction exits will be installed before construction begins. An in-stream work plan will be provided by the contractor prior to the construction.

Describe how the structural practices listed above will be utilized after construction activities have been completed:

The existing retaining wall will be reconstructed during construction of proposed bridge substructures and abutments, and during construction of proposed outfall.

D. **Treatment Chemicals**

Will polymer flocculants or treatment chemicals be utilized on this project: ☐ Yes ☒ No

If *yes* above, identify where and how polymer flocculants or treatment chemicals will be utilized on this project.

N/A

E. **Permanent (i.e., Post-Construction) Storm Water Management Controls:** Provided below is a description of measures that will be installed during the construction process to control volume and pollutants in storm water discharges that will occur after construction operations have been completed.The installation of these devices may be subject to Section 404 of the Clean Water Act.

1. Such practices may include but are not limited to: storm water detention structures (including wet ponds), storm water retention structures, flow attenuation by use of open vegetated swales and natural depressions, infiltration of runoff on site, and sequential systems (which combine several practices).

   The practices selected for implementation were determined based on the technical guidance in Chapter 41 (Construction Site Storm Water Pollution Control) of the IDOT BDE Manual. If practices other than those discussed in Chapter 41 are selected for implementation or if practices are applied to situations different from those covered in Chapter 41, the technical basis for such decisions will be explained below.

2. Velocity dissipation devices will be placed at discharge locations and along the length of any outfall channel as necessary to provide a non-erosive velocity flow from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (e.g., maintenance of hydrologic conditions such as the hydroperiod and hydrodynamics present prior to the initiation of construction activities).

Description of permanent storm water management controls:

N/A. Outfall is at the abutment of the bridge. Proposed outfalls are the same location of existing outfalls.

F. **Approved State or Local Laws:** The management practices, controls and provisions contained in this plan will be in accordance with IDOT specifications, which are at least as protective as the requirements contained in the IEPA's Illinois Urban Manual. Procedures and requirements specified in applicable sediment and erosion site plans or storm water management plans approved by local officials shall be described or incorporated by reference in the space provided below. Requirements specified in sediment and erosion site plans, site permits, storm water management site plans or site permits approved by local officials that are applicable to protecting surface water resources are, upon submittal of an NOI, to be authorized to discharge under the Permit ILR10 incorporated by reference and are enforceable under this permit even if they are not specifically included in the plan.
Description of procedures and requirements specified in applicable sediment and erosion site plans or storm water management plans approved by local officials:

Illinois Procedures and Standards for Urban Soil Erosion and Sedimentation Control.

G. **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 cons
   - 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.
- 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 (chemicals, concrete curing compounds, petroleum, etc.)
- 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.
- Polymer Flocculants and Treatment Chemicals - Identify the use and dosage of treatment chemicals and provide the Resident Engineer with Material Safety Data Sheets. Describe procedures on how the chemicals will be used and identify who will be responsible for the use and application of these chemicals. The selected individual must be trained on the established procedures.
- Additional measures indicated in the plan.

III. Maintenance:

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. Describe how all items will be checked for structural integrity, sediment accumulation and functionality. Any damage or undermining shall be repaired immediately. Provide specifics on how repairs will be made. The following additional procedures will be used to maintain, in good and effective operating conditions, the vegetation, erosion and sediment control measures and other protective measures identified in this plan. 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.

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 control deficiency, the engineer will notify the contractor to correct the deficiency.

All ESC measures will be maintained in accordance with the IDOT Erosion Control Field Guide for Construction Inspection: (http://www.dot.il.gov/desenv/environmental/idot%20field%20guide.pdf) and IDOT's Best Management Practices - Maintenance Guide: (http://www.dot.state.il.us/desenv/environmental/bestpractices.html). All maintenance of ESC systems is the responsibilty of the contractor.

IV. Inspections:

Qualified personnel shall inspect disturbed areas of the construction site including Borrow, Waste, and Use Areas, which have not yet been finally stabilized, structural control measures, and locations where vehicles and equipment enter and exit the site using IDOT Storm Water Pollution Prevention Plan Erosion Control Inspection Report, BC 2259. Such inspections shall be conducted at least once every seven (7) calendar days and within twenty-four (24) hours of the end of a storm or by the end of the following business or work day that is 0.5 inch or greater or equivalent snowfall.

Inspections may be reduced to once per month when construction activities have ceased due to frozen conditions. Weekly inspections will recommence when construction activities are conducted, or if there is 0.5” or greater rain event, or a discharge due to snowmelt occurs.

If any violation of the provisions of this plan is identified during the conduct of the construction work covered by this plan, the Resident Engineer shall notify the appropriate IEPA Field Operations Section office by email at: epa.swnoncomp@illinois.gov, telephone or fax within twenty-four (24) hours of the incident. The Resident Engineer shall then complete and submit an “Incidence of Non-Compliance” (ION) report for the identified violation within five (5) days of the incident. The Resident Engineer shall use forms provided by IEPA and shall 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. All reports of non-compliance shall be signed by a responsible authority in accordance with Part VI. G of the Permit ILR10.

The Incidence of Non-Compliance shall be mailed to the following address:
Illinois Environmental Protection Agency
Division of Water Pollution Control
Attn: Compliance Assurance Section
1021 North Grand East
Post Office Box 19276
Springfield, Illinois 62794-9276

V. 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.

Illinois Department of Transportation

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
FAU 2552	Washington Street	16-00167-000-BR

Project Number	County	Contract Number
772J(145)	DuPage	61G82

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

Print Name	Title
Contractor TBD	

Name of Firm	Phone

Street Address	City	State	Zip Code

Items which this Contractor/subcontractor will be responsible for as required in Section II.G. of SWPPP

Illinois Environmental Protection Agency

1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276 • (217) 782-3397

Division of Water Pollution Control
Notice of Intent (NOI) for General Permit
to Discharge Storm Water Associated with Construction Site Activities

This fillable form may be completed online, a copy saved locally, printed and signed before it is submitted to the Permit Section at the above address.

For Office Use Only

Permit No. ILR10 _____

OWNER INFORMATION

Company/Owner Name: City of Naperville

Mailing Address: 400 S Eagle St Phone: 630.548.2958

City: Naperville State: IL Zip: 60540 Fax: _____

Contact Person: Andrew Hynes, PE, PTOE E-mail: hynesa@naperville.il.us

Owner Type (select one) City

MS4 Community: ☑ Yes ○ No

CONTRACTOR INFORMATION

Contractor Name: TBD

Mailing Address: _____ Phone: _____

City: _____ State: ___ Zip: _____ Fax: _____

CONSTRUCTION SITE INFORMATION

Select One: ◉ New ○ Change of information for: ILR10 _____

Project Name: Washington Street Bridge Roadway and Bridge Reconstruction County: DuPage

Street Address: 399 S Washington Street City: Naperville IL Zip: 60540

Latitude:	41	77	04	Longitude:	88	14	81	13	38N	9E
	(Deg)	(Min)	(Sec)		(Deg)	(Min)	(Sec)	Section	Township	Range

Approximate Construction Start Date March 2023 Approximate Construction End Date October 2024

Total size of construction site in acres: 2.41

If less than 1 acre, is the site part of a larger common plan of development?

○ Yes ☑ No

Fee Schedule for Construction Sites:
Less than 5 acres - $250
5 or more acres - $750

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

Has the SWPPP been submitted to the Agency? ○ Yes ☑ No

(Submit SWPPP electronically to: epa.constilr10swppp@illinois.gov)

Location of SWPPP for viewing: Address: _____ City: _____

SWPPP contact information:

Inspector qualifications:

Contact Name: Tony Wolff P.E.

Phone: 773-355-2961 Fax: 773-775-4014 E-mail: twolff@ciorba.com

Project inspector, if different from above

Inspector qualifications:

Inspector's Name: _____

Phone: _____ Fax: _____ E-mail: _____

TYPE OF CONSTRUCTION (select one)

Construction Type Transportation

SIC Code: 16229901

Type a detailed description of the project:

The City of Naperville is proposing to replace the existing Washington Street bridge located in downtown Naperville, in DuPage County. The bridge crosses West Branch of DuPage River between Aurora Avenue and Chicago Avenue with a low flow riverwalk located on the south side of the bridge. This project will also include roadway resurfacing, realignment of the storm sewers, sanitary sewers, water mains and other utility relocations near the vicinity of the bridge.

HISTORIC PRESERVATION AND ENDANGERED SPECIES COMPLIANCE

Has the project been submitted to the following state agencies to satisfy applicable requirements for compliance with Illinois law on:

Historic Preservation Agency	☑ Yes	☐ No
Endangered Species	☑ Yes	☐ No

RECEIVING WATER INFORMATION

Does your storm water discharge directly to: ☑ Waters of the State or ☑ Storm Sewer

Owner of storm sewer system: City of Naperville

Name of closest receiving water body to which you discharge: West Branch of the DuPage River

Mail completed form to: Illinois Environmental Protection Agency
Division of Water Pollution Control
Attn: Permit Section Post Office Box 19276
Springfield, Illinois 62794-9276
or call (217) 782-0610
FAX: (217) 782-9891

Or submit electronically to:

I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage this 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. In addition, I certify that the provisions of the permit, including the development and implementation of a storm water pollution prevention plan and a monitoring program plan, will be complied with.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Andrew Hynes for City of Naperville — Owner Signature:

1/6/2021 — Date:

Andrew Hynes for City of Naperville — Printed Name:

Deputy City Engineer - P.E. — Title:

INSTRUCTIONS FOR COMPLETION OF CONSTRUCTION ACTIVITY NOTICE OF INTENT (NOI) FORM

Submit original, electronic or facsimile copies. Facsimile and/or electronic copies should be followed-up with submission of an original signature copy as soon as possible. Please write "copy" under the "For Office Use Only" box in the upper right hand corner of the first page.

This fillable form may be completed online, a copy saved locally, printed and signed before it is submitted to the Permit Section at:

Illinois Environmental Protection AgencyDivision of Water Pollution ControlPermit SectionPost Office Box 19276Springfield, Illinois 62794-9276or call (217) 782-0610

FAX: (217) 782-9891

Or submit electronically to:

Reports must be typed or printed legibly and signed.

Any facility that is not presently covered by the General NPDES Permit for Storm Water Discharges From Construction Site Activities is considered a new facility.

If this is a change in your facility information, renewal, etc., please fill in your permit number on the appropriate line, changes of information or permit renewal notifications do not require a fee.

NOTE: FACILITY LOCATION IS NOT NECESSARILY THE FACILITY MAILING ADDRESS, BUT SHOULD DESCRIBE WHERE THE FACILITY IS LOCATED.

Use the formats given in the following examples for correct form completion.

	Example	Format			
Section	12	1 or 2 numerical digits	Township	12N	1 or 2 numerical digits followed by "N" or "S"
Range	12W	1 or 2 numerical digits followed by "E" or "W"			

For the Name of Closest Receiving Waters, do not use terms such as ditch or channel. For unnamed tributaries, use terms which include at least a named main tributary such as "Unnamed Tributary to Sugar Creek to Sangamon River."

Submission of initial fee and an electronic submission of Storm Water Pollution Prevention Plan (SWPPP) for Initial Permit prior to the Notice of Intent being considered complete for coverage by the ILR10 General Permits. Please make checks payable to: Illinois EPA at the above address.

Construction sites with less than 5 acres of land disturbance - fee is $250.

Construction sites with 5 or more acres of land disturbance - fee is $750.

SWPPP should be submitted electronically to: . When submitting electronically, use Project Name and City as indicated on NOI form.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL PERMIT

LOG NUMBERS: 2020-65700 **PERMIT NO.:** 2020-HB-65700
BUREAU ID: W0438030040

FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS **DATE ISSUED:** November 9, 2020
PREPARED BY: Ciorba Group

SUBJECT: NAPERVILLE - Washington Street Bridge
(Naperville - Springbrook Sewage Treatment Plant) - Sanitary Sewer Permit

PERMITTEE TO CONSTRUCT, OWN, AND OPERATE

City of Naperville
400 South Eagle Street
Naperville, IL 60540-5279

Permit is hereby granted to the above designated permittee(s) to construct and/or operate water pollution control facilities described as follows (quantities are approximate):

303 feet of a 10 inch double-barrel inverted siphon, 5 feet of 6 inch sanitary sewer, 335 feet of 10 inch sanitary sewer, 113 feet of 12 inch sanitary sewer, 65 feet of 15 inch sanitary sewer and 6 manholes to replace existing sewer (0 P.E., 0 GPD, DAF) located at the intersection of Aurora Avenue and South Washington Street with discharge to an existing 27 inch sanitary sewer tributary to the above indicated sewage treatment plant.

This Permit is issued subject to the following Special Condition(s). If such Special Condition(s) require(s) additional or revised facilities, satisfactory engineering plan documents must be submitted to this Agency for review and approval for issuance of a Supplemental Permit.

SPECIAL CONDITION 1: Any connections to this sanitary sewer extension must be in accordance with the latest Revisions of Title 35, Subtitle C, Chapter 1. Permits must be obtained if required by said regulations.

SPECIAL CONDITION 2: The Permittee to Construct shall be responsible for obtaining an NPDES Storm Water Permit prior to initiating construction if the construction activities associated with this project will result in the disturbance of one (1) or more acres total land area.

An NPDES Storm Water Permit may be obtained by submitting a properly completed Notice of Intent (NOI) form by certified mail to the Agency's Division of Water Pollution Control - Permit Section.

SPECIAL CONDITION 3: Please contact the Illinois Department of Natural Resources (IDNR), Office of Water Resources. IDNR may require a permit pursuant to the Rivers, Lakes, and Streams Act for construction of that portion of the project located in the floodplain. The U.S. Army Corps of Engineers may also require a permit pursuant to Section 404 of the Clean Water Act. Application forms received from IDNR will specify which Corps District you should contact.

THE STANDARD CONDITIONS OF ISSUANCE INDICATED ON THE REVERSE SIDE MUST BE COMPLIED WITH IN FULL. READ ALL CONDITIONS CAREFULLY.

ALD:JDS:n:\bow\permits\wpdocs\docs\permits\stateco n\smith\2020-65700.docx

DIVISION OF WATER POLLUTION CONTROL

Amy L. Dragovich, P.E.
Manager, Permit Section

cc: EPA-Des Plaines FOS
Ciorba Group
Springbrook Water Reclamation Center
Records - Municipal

READ ALL CONDITIONS CAREFULLY:
STANDARD CONDITIONS

The Illinois Environmental Protection Act (Illinois Revised Statutes Chapter 111-12. Section 1039) grants the Environmental Protection Agency authority to impose conditions on permits which it issues.

1. Unless the construction for which this permit is issued has been completed, this permit will expire (1) two years after the date of issuance for permits to construct sewers or wastewater sources or (2) three years after the date of issuance for permits to construct treatment works or pretreatment works.

2. The construction or development of facilities covered by this permit shall be done in compliance with applicable provisions of Federal laws and regulations, the Illinois Environmental Protection Act, and Rules and Regulations adopted by the Illinois Pollution Control Board.

3. There shall be no deviations from the approved plans and specifications unless a written request for modification of the project, along with plans and specifications as required, shall have been submitted to the Agency and a supplemental written permit issued.

4. The permittee shall allow any agent duly authorized by the Agency upon the presentations of credentials:

   a. to enter at reasonable times, the permittee's premises where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit;

   b. to have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit;

   c. to inspect at reasonable times, including during any hours of operation of equipment constructed or operated under this permit, such equipment or monitoring methodology or equipment required to be kept, used, operated, calibrated and maintained under this permit;

   d. to obtain and remove at reasonable times samples of any discharge or emission of pollutants;

   e. to enter at reasonable times and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this permit.

5. The issuance of this permit:

   a. shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located;

   b. does not release the permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities;

   c. does not release the permittee from compliance with other applicable statutes and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations;

   d. does not take into consideration or attest to the structural stability of any units or parts of the project;

   e. in no manner implies or suggests that the Agency (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

6. Unless a joint construction/operation permit has been issued, a permit for operating shall be obtained from the agency before the facility or equipment covered by this permit is placed into operation.

7. These standard conditions shall prevail unless modified by special conditions.

8. The Agency may file a complaint with the Board for suspension or revocation of a permit:

   a. upon discovery that the permit application contained misrepresentations, misinformation or false statement or that all relevant facts were not disclosed; or

   b. upon finding that any standard or special conditions have been violated; or

   c. upon any violation of the Environmental Protection Act or any Rules or Regulation effective thereunder as a result of the construction or development authorized by this permit.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 North Grand Avenue, East; Post Office Box 19276; Springfield, IL 62794-9276

Division of Public Water Supplies Telephone 217/782-1724

PUBLIC WATER SUPPLY CONSTRUCTION PERMIT

SUBJECT: NAPERVILLE (IL0434670)

Permit Issued to:
City of Naperville
400 South Eagle St.
Naperville, IL 60540

PERMIT NUMBER: 0161-FY2021

DATE ISSUED: October 9, 2020
PERMIT TYPE: Water Main Extension

The issuance of this permit is based on plans and specifications prepared by the engineers/architects indicated and are identified as follows. This permit is issued for the construction and/or installation of the public water supply improvements described in this document, in accordance with the provisions of the Environmental Protection Act, Title IV, Sections 14 through 17, and Title X, Sections 39 and 40, and is subject to the conditions printed on the last page of this permit and the ADDITIONAL CONDITIONS listed below.

FIRM: Ciorba Group, Inc.
NUMBER OF PLAN SHEETS: 30
TITLE OF PLANS: "Washington Street Bridge"
APPLICATION RECEIVED DATE: August 19, 2020

PROPOSED IMPROVEMENTS:

The installation of approximately 116 feet of 6-inch, 22 feet of 8-inch and 572 feet of 12-inch water main along Washington Street.

ADDITIONAL CONDITIONS:

1. All water mains shall be satisfactorily disinfected prior to use, pursuant to 35 Ill. Adm. Code 602.310. Two consecutive sets of samples collected at least 24 hours apart must show the absence of coliform bacteria. The samples must be collected from every 1,200 feet of new water main along each branch and from the end of the line. An operating permit must be obtained before the project is placed in service.

2. A lead informational notice must be given to each potentially affect residence at least 14 days prior to the permitted water main work. The notification must satisfy the requirements of Section 17.11 of the Environmental Protection Act. If notification is required to a residence that is a multidwelling building, posting at the primary entrance way to the building shall be sufficient. If the community water supply serves a population less than 3,301, alternative notification means may be utilized in lieu of an individual written notification. Refer to Section 17.11 for alternative notification requirements. Enclosed is suggested language for the notice. If this project involves water service to a significant proportion of non-English speaking consumers, the notification must contain information in the appropriate language regarding the importance and how to obtain a translated copy. The Responsible Operator in Charge of the community water system is responsible for preparing the notice. A copy of the notice used must be submitted to the Agency with the Application for Operating Permit.

3. The permit approval is for the Application, Schedule B and 30 plan sheets received on August 19, 2020. Including the additional information of 1 revised sheet received 9/29/2020, and all applicable emails most recently dated to 9/29/2020

DCC:CLB

Jenny Larsen

Jenny Larsen, P.E.
Lead Worker, Permit Section
Division of Public Water Supplies

cc: Ciorba Group, LLC
Elgin Regional Office
DuPage County Health Department
IDPH/DEH – Plumbing and Water Quality Program

STANDARD CONDITIONS FOR CONSTRUCTION/DEVELOPMENT PERMITS
ISSUED BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

The Illinois Environmental Protection Agency Act (415 ILCS 5/39) grants the Environmental Protection Agency authority to impose conditions on permits which it issues.

These standard conditions shall apply to all permits which the Agency issues for construction or development projects which require permits under the Division of Water Pollution Control, Air Pollution Control, Public Water Supplies and Land Pollution Control. Special conditions may also be imposed by the separate divisions in addition to these standard conditions.

1. Unless this permit has been extended or it has been voided by a newly issued permit, this permit will expire one year after this date of issuance unless construction or development on this project has started on or prior to that date. (See standard condition #8 below)

2. The construction or development of facilities covered by this permit shall be done in compliance with applicable provisions of Federal laws and regulations, the Illinois Environmental Protection Act, and Rules and Regulations adopted the Illinois Pollution Control Board.

3. There shall be no deviations from the approved plans and specifications unless a written request for modification of the project, along with plans and specifications as required, shall have been submitted to the Agency and a supplemental written permit issued.

4. The permittee shall allow any agent duly authorized by the Agency upon the presentation of credentials:

   a. to enter at reasonable times the permittee's premises where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit.

   b. to have access to and copy at reasonable times any records required be kept under the terms and conditions of this permit.

   c. to inspect at reasonable times, including during any hours or operation of equipment constructed or operated under this permit, such equipment or monitoring methodology or equipment required to be kept, used, operated, calibrated and maintained under this permit.

   d. to obtain and remove at reasonable times samples of any discharge or emission of pollutants.

   e. to enter at reasonable times and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this permit.

5. The issuance of this permit:

   a. shall not be considered as in any manner affecting the title of the permits upon which the permitted facilities are to be located;

   b. does not release the permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities;

   c. does not release the permittee from compliance with the other applicable statues and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations;

   d. does not take into consideration or attest to the structural stability of any units or parts of the project;

   e. in no manner implies or suggests that the Agency (or its officers, agents or employees) assumes any liability directly or indirectly for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

6. These standard conditions shall prevail unless modified by special conditions.

7. The Agency may file a complaint with Board of modification, suspension or revocation of a permit:

   a. upon discovery that the permit application misrepresentation or false statements or that all relevant facts were not disclosed; or

   b. upon finding that any standard or special conditions have been violated; or

   c. upon any violation of the Environmental Protection Act or any Rules or Regulation effective thereunder as a result of the construction or development authorized by this permit.

8. Division of Public Water Supply Construction Permits expire one year from date of issuance or renewal, unless construction has started. If construction commences within one year from date of issuance or renewal, the permit expires five years from the date of permit issuance or renewal. A request for extension shall be filed prior to the permit expiration date.

CiorbaGroup
CONSULTING ENGINEERS

Date Prepared: 07/01/20

DuPage County Stormwater Management Certification Application

City of Naperville, IL

Naperville

8725 W. Higgins Road, Suite 600
Chicago, IL 60631

P 773.775.4009
ciorba.com

DUPAGE COUNTY STORMWATER MANAGEMENT CERTIFICATION APPLICATION (1/2)

1. Community and Status	2. Date of Application	3. Stormwater Application No.	4. Community Tracking No.
☐ Non ☒ Partial ☐ Complete		SM2020-0969	20-25-0009

5. Applicant:

Name: Tony Wolff, PE, CFM
Company Name: Ciorba Group, Inc.
Address: 8725 W. Higgins Road, Suite 600
City, ST, Zip: 60631
Phone: 773.775.4009
Email: twolff@ciorba.com

6. Owner:

Name: City of Naperville (rep by Andrew Hynes, PE,PTOE)
Company Name: City of Naperville
Address: 400 S Eagle St
City, ST, Zip: Naperville, IL 60540
Phone: (630) 548-2958
Email: hynesa@naperville.il.us

7. Description of Proposed Development:

Washington Street bridge and roadway reconstruction.

8. Location of Development:
(if not address use nearest major intersection)

Address: Washington Street b/w Chicago Ave and Aurora Avenue
Municipality: Naperville
Watershed Planning Area & Trib: West Branch of the DuPage River

9. Legal Description (attach additional sheets if needed)

13 (¼ Section) 38N (Township) 9E (Range)

PIN _____ - _____ - _____ - _____

PIN _____ - _____ - _____ - _____

10. Check all of the conditions which apply:

☑ Flood Plain ☐ Stormwater Detention ☐ Best Management Practices ☑ Soil Erosion & Sediment Control
☐ Wetland ☐ Wetland Buffer ☑ Riparian Buffer

11. Acknowledgement of On-Site Infiltration PCBMPs

I acknowledge that I have used my best effort to identify zones for which on-site infiltration are prohibited for Post Construction Best Management Practices (PCBMPs) in accordance with the Ordinance (15-63.B)

M. Anthony Wolff — Signature of Applicant
Tony Wolff, PE, CFM — Print Name
6/30/2020 — Date

12. Freedom of Information Act (FOIA)

I acknowledge that all architects' drawings, engineers' technical submissions and other construction-related technical documents containing stormwater management information submitted with this application may be made available for inspection or copying by the County, notwithstanding 5 ILCS 140/7(1)(k), upon the written request for such materials. Such productions will be restricted to the following parties: i) the Applicant ii) any subsequent owner of the subject property; or iii) any governmental unit having planning or drainage jurisdiction within 1 and ½ mile of the subject property.

M. Anthony Wolff — Signature of Applicant
Tony Wolff, PE, CFM — Print Name
6/30/2020 — Date

Andrew Hynes for CON — Signature of Owner
Andrew Hynes, PE, PTOE — Print Name
7/1/2020 — Date

13. Statement of Opinion for Minimum Criteria for Stormwater Management

I am a Professional Engineer under the employment of the Applicant. It is my professional opinion that the development meets the minimum criteria for stormwater management in accordance with the Ordinance (15-36)

M. Anthony Wolff — Signature of Professional Engineer
Tony Wolff, PE, CFM — Print Name
6/30/2020 — Date

_____ Community Copy _____ DuPage County SM Copy _____ Applicant Copy

Rev 10/19

DUPAGE COUNTY STORMWATER MANAGEMENT CERTIFICATION APPLICATION (2/2)

Stormwater Application No: SM2020-0969 | **Community Tracking No:** 20-25-0009

14. Statement of Opinion for Presence of Flood Plain, Wetlands, and Buffers (15-47-A.5)

Flood Plain	Wetlands	Buffers
☑ I acknowledge the presence of flood plain.	☐ I acknowledge the presence of wetlands.	☑ I acknowledge the presence of buffers.
☐ I deny the presence of flood plain.	☑ I deny the presence of wetlands.	☐ I deny the presence of buffers.
M. Anthony Wolff 6/30/2020	M. Anthony Wolff 6/30/2020	M. Anthony Wolff 6/30/2020
Signature of Qualified Professional / Date	Signature of Qualified Professional / Date	Signature of Qualified Professional / Date
Tony Wolff, PE, CFM	Tony Wolff, PE, CFM	Tony Wolff, PE, CFM
Printed Name	Printed Name	Printed Name

15. Soil Erosion & Sediment Control Submittal Requirements (15-50.B)

(For developments with less than 1 acre of land disturbance that are not part of a larger common plan)

I certify that the development meets the soil erosion and sediment control design criteria found in Article VII have been met.

M. Anthony Wolff — Signature of Qualified Designer

Tony Wolff, PE, CFM — Print Name

6/30/2020 — Date

16. Soil Erosion & Sediment Control Requirements (15-59.W) (For developments with land disturbing activities greater than 1 acre)

I acknowledge that the site complies with the IEPA NPDES ILR10 Permit.

Signature of Applicant / Print Name / Date

17. Acknowledgement of Required As-Built Plans (15-47.B)

I acknowledge that a record drawing signed by either a Professional Engineer or a Professional Land Surveyor depicting the as-constructed size, rim, and invert elevations of pipes, stormwater structures and culverts, and contours and flood storage volumes of all required basins of the major stormwater systems and minor stormwater systems shall be submitted for review and approval upon completion of the stormwater facilities.

Andrew Hynes for CON — Signature of Owner

Andrew Hynes, PE, PTOE — Print Name

7/1/2020 — Date

18. Intentional Misrepresentation Under Penalty of Perjury

I declare that I have examined and/or made this application and rider, and it is true and correct to the best of my knowledge and belief. I realize that the information that I have affirmed hereon forms a basis for the issuance of the stormwater management certification(s) herein applied for and approval of plans in connection therewith shall not be construed to permit any construction upon said premises or use thereof in violation of any provision of any applicable ordinance or to excuse the owner or his successors in title from complying therewith. The Owner and Applicant each understand and agree to construct said improvement in compliance with all provisions of the applicable ordinances.

M. Anthony Wolff — Signature of Applicant

Tony Wolff, PE, CFM — Print Name

6/30/2020 — Date

Andrew Hynes for CON — Signature of Owner

Andrew Hynes, PE, PTOE — Print Name

7/1/2020 — Date

DO NOT WRITE BELOW THIS LINE

19. Security (15-54)

Stormwater Facilities	$
Wetlands/Natural Area	$
SE/SC	$
Total	$

20. Stormwater Fees

Community Review	$
DCSM Review	$ 11,971.50
Fee-in-Lieu $ Wetland	$ BMP

Seal/Stamp

Certifications expire December 31st of the third year of Certification or Authorization, whichever is earlier.

AUTHORIZED

By: CCH/DRW

Date: February 10, 2021

Tracking No: SM2020-0969

Community No: 20-25-0009

DuPage County Stormwater Management

21. Final Approvals (See Certification letter for special conditions and general conditions.)

	Date	Approved by/title
Community Certification		
County Authorization	2/10/2021	Clayton Hefftar - DRW

CiorbaGroup
CONSULTING ENGINEERS

Date Prepared: 07/31/2020

Floodway Construction Permit

City of Naperville

Naperville

8725 W. Higgins Road, Suite 600
Chicago, IL 60631

P 773.775.4009
ciorba.com

STATE OF ILLINOIS

Permit No.: DIL-18-002

Department of Transportation

Division of Highways
2300 South Dirksen Parkway
Springfield, IL 62764

REGULATED FLOODWAY CONSTRUCTION PERMIT
RIVERS, LAKES AND STREAMS ACT "615 ILCS 5"

PERMISSION IS HEREBY GRANTED TO: City of Naperville
400 South Eagle Street
Naperville, IL 60540

FOR CONSTRUCTION OF: Replacing the Washington Street Bridge over West Branch DuPage River. The proposed will be a 22" CIP PT Slab with a Span Length No.1 of 59.25'and Span Length No.2 of 59.25' end to end and Structure Length Back to Back Abutment of 125'- 9 1/4". The project is located Section 13, Township 38 North, Range 9 East of the 3rd Prime Meridian, DuPage County, as part of Section Number 16-00167-00-BR Structure Number 022-6749.

IN ACCORDANCE WITH THE Application and Plan
DATED August 22, 2017 AND MADE A PART HEREOF, AND SUBJECT TO THE
TERMS SHOWN ON THE BACK HEREOF AND THE SPECIAL CONDITIONS ATTACHED
HERETO AS EXHIBIT.

EXAMINED AND APPROVED

REGIONAL ENGINEER/CENTRAL BUREAU CHIEF — DATE 8-12-2020

THIS PERMIT is subject to the following conditions:

(a) This permit is granted in accordance with Rivers, Lakes And Streams Act "615 ILCS 5".

(b) This permit does not convey title to the permittee or recognize title of the permittee to any submerged or other lands, and furthermore, does not convey, lease or provide any right or rights of occupancy or use of the public or private property on which the project or any part thereof will be located, or otherwise grant to the permittee any right or interest in or to the property, whether the property is owned or possessed by the State of Illinois or by any private or public party or parties.

(c) This permitee does not release the permitee from liability for damage to persons or property resulting from the work covered by this permit, and does not authorize any injury to private property or invasion of private rights.

(d) This permit does not relieve the permitee of the responsibility to obtain other federal, state or local authorizations required for the construction of the permitted activity; and if the permitee is required by law to obtain approval from any federal agency to do the work, this permit is not effective until the federal approval is obtained.

(e) The permitee shall, at his own expense, remove all temporary piling, cofferdams, false work, and material incidental to the construction of the project, from floodway, river, stream or lake in which the work is done. If the permittee fails to remove such structures or materials, the state may have removal made at the expense of the permittee. If future need for public navigation or public interest of any character, by the state or federal government, necessitates changes in any part of the structure or structures, such changes shall be made by and at the expense of the permittee or his successors as required by the Department of Transportation or other properly constituted agency, within sixty (60) days from receipt of written notice of the necessity from the Department or other agency, unless a longer period of time is specifically authorized.

(f) The execution and details of the work authorized shall be subject to the supervision and approval of the Department. Department personnel shall have right of access to accomplish this purpose.

(g) Starting work on the construction authorized will be considered full acceptance by the permittee of the terms and conditions of the permit.

(h) The Department in issuing this permit has relied upon the statements and representations made by the permittee; if any statement or representation made by the permittee is found to be false, the permit may be revoked at the option of the Department; and when a permit is revoked all rights of the permittee under the permit are voided.

(i) If the project authorized by this permit is located in or along Lake Michigan or a meandered lake, the permittee and his successors shall make no claim whatsoever to any interest in any accretions caused by the project.

(j) In issuing this permit, the Department does not approve the adequacy of the design or structural strength or the structure or improvement.

(k) Noncompliance with the conditions stated herein will make this permit void.

(l) If the work permitted is not initiated on or before six years from the date of issuance as shown on the front of this form, this permit shall be void.

JOINT APPLICATION FORM FOR ILLINOIS

ITEMS 1 AND 2 FOR AGENCY USE

1. Application Number	2. Date Received

3. and 4. (SEE SPECIAL INSTRUCTIONS) NAME, MAILING ADDRESS AND TELEPHONE NUMBERS

3a. Applicant's Name:	3b. Co-Applicant/Property Owner Name (if needed or if different from applicant):	4. Authorized Agent (an agent is not required):
Andrew Hynes, PE, PTOE Company Name (if any) : City of Naperville Address: 400 S Eagle St Naperville, IL 60540 Email Address: hynesa@naperville.il.us	Company Name (if any): Address: Email Address:	Tony Wolff Company Name (if any): Ciorba Group, Inc. Address: 8725 W. Higgins Road, Suite 600 Chicago, IL 60631 Email Address: twolff@ciorba.com
Applicant's Phone Nos. w/area code Business: 630.548.2958 Residence: Cell: Fax:	Applicant's Phone Nos. w/area code Business: Residence: Cell: Fax:	Agent's Phone Nos. w/area code Business: 733-355-2961 Residence: Cell: 847-910-2082 Fax:

STATEMENT OF AUTHORIZATION

I hereby authorize, Tony Wolff / Ciorba Group to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

Andrew Hynes / City of Naperville — Applicant's Signature

8/3/2020 — Date

5. ADJOINING PROPERTY OWNERS (Upstream and Downstream of the water body and within Visual Reach of Project)

Name	Mailing Address	Phone No. w/area code
a.		
b.		
c.		
d.		

6. PROJECT TITLE:
Washington Street Bridge

7. PROJECT LOCATION:
Washington Street between Chicago Avenue and Aurora Avenue

LATITUDE: 41.77045 °N	UTMs Northing:
LONGITUDE: -88.14810 °W	Easting:

STREET, ROAD, OR OTHER DESCRIPTIVE LOCATION	LEGAL DESCRIPT	QUARTER	SECTION	TOWNSHIP NO.	RANGE
Washington Street between Chicago Ave. and Aurora Ave.		SE	13	38N	9E

☒ IN OR ☐ NEAR CITY OF TOWN (check appropriate box)
Municipality Name
City of Naperville

COUNTY	STATE	ZIP CODE	WATERWAY	RIVER MILE (if applicable)
DuPage	IL	60540	West Branch of the DuPage River	

Revised 2010

☐ Corps of Engineers ☒ IL Dep't of Natural Resources ☐ IL Environmental Protection Agency ☐ Applicant's Copy

8. PROJECT DESCRIPTION (Include all features):

The City of Naperville is proposing to replace the existing Washington Street bridge located in downtown Naperville, in DuPage County. The bridge crosses West Branch of DuPage River between Aurora Avenue and Chicago Avenue with a low flow riverwalk located on the south side of the bridge. This project will also include roadway resurfacing, realignment of the storm sewers, sanitary sewers, water mains and other utility relocations near the vicinity of the bridge.

9. PURPOSE AND NEED OF PROJECT:

The existing Washington Street bridge over West Branch of the DuPage River is structurally deficient, functionally obsolete and has a sufficiency rating of 9.5. The primary purpose of this project is to replace the bridge, with improvements of roadway geometry in the near vicinity of the bridge that satisfies future traffic demands and enables non-motorized mobility.

COMPLETE THE FOLLOWING FOUR BLOCKS IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

10. REASON(S) FOR DISCHARGE:

Discharge to the river is due to construction of proposed bridge abutments and granular backfill required to fill the area between the back of the proposed abutment and the front of the existing abutment.

11. TYPE(S) OF MATERIAL BEING DISCHARGED AND THE AMOUNT OF EACH TYPE IN CUBIC YARDS FOR WATERWAYS:

TYPE: Concrete - 12.5 ; Structural Granular Backfill - 11.4

AMOUNT IN CUBIC YARDS:

23.9 cu yd

12. SURFACE AREA IN ACRES OF WETLANDS OR OTHER WATERS FILLED (See Instructions)

0.009 Acres of Permanent Impact and 0.231 Acres of Temporary Impact

13. DESCRIPTION OF AVOIDANCE, MINIMIZATION AND COMPENSATION (See instructions)

To minimize impacts, the project will limit disturbance to only those locations that are absolutely necessary for the roadway improvements and bridge reconstruction. The proposed improvements will provide adequate floodplain compensatory storage within the vicinity of the project. To avoid temporary impacts, erosion control measures like salt tolerant sodding, inlet filters and erosion control fence will be added down grade of construction boundaries where applicable, and a silt curtain will be placed along the stream banks to avoid erosion and silt transportation from the construction activities.

14. Date activity is proposed to commence: April 2021

Date activity is expected to be completed: October 2022

15. Is any portion of the activity for which authorization is sought now complete? Yes [ ] No [X]

NOTE: If answer is "YES" give reasons in the Project Description and Remarks section. Indicate the existing work on drawings.

Month and Year the activity was completed

16. List all approvals or certification and denials received from other Federal, interstate, state, or local agencies for structures, construction, discharges or other activities described in this application.

Issuing Agency	Type of Approval	Identification No.	Date of Application	Date of Approval	Date of Denial
IEPA	Water Supply Construction	To Be Submitted			
IEPA	Sewer Construction	To be Submitted			
USACE	404	To Be Submitted			
DuPage County	Stormwater Management	SM2020-0969	July 9, 2020		

17. CONSENT TO ENTER PROPERTY LISTED IN PART 7 ABOVE IS HEREBY GRANTED. Yes [X] No [ ]

18. APPLICATION VERIFICATION (SEE SPECIAL INSTRUCTIONS)

Application is hereby made for the activities described herein. I certify that I am familiar with the information contained in the application, and that to the best of my knowledge and belief, such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities.

Andrew Hynes / City of Naperville — Signature of Applicant or Authorized Agent

8/3/2020 — Date

Signature of Applicant or Authorized Agent — Date

Signature of Applicant or Authorized Agent — Date

[ ] Corps of Engineers Revised 2010 [X] IL Dep't of Natural Resources [ ] IL Environmental Protection Agency [ ] Applicant's Copy

SEE INSTRUCTIONS FOR ADDRESS

Illinois Department of Transportation

Permit Summary for Floodway Construction in Northeast Illinois

Applicant Agency:	City of Naperville	County:	DuPage
Route:	FAU 2552 – Washington Street	Stream:	West Branch of DuPage River
Section:	16-00167-00-BR	SN:	022-0030 (EX) / 022-6749 (PR)

General Description (bridge length, bridge width, number of spans, abutment type, proposed scope of work within floodway, etc.):

Existing Facility: The existing bridge has a total length of 129.25-ft back to back abutments with three equal spans which are each 43-ft long and a low chord at 670.22-ft. The roadway on the bridge consists of two through lanes in each direction with a total deck width of 62-ft. The superstructure is supported by two concrete wall piers and two closed abutments. The river flows under the bridge skewed approximately 28°to the roadway alignment.

Proposed Improvement: The scope of this project is to replace the existing West Branch of the DuPage River bridge crossing. The proposed replacement bridge will be a two-span structure. In addition, several improvements to the surrounding roadways will be considered as part of this project. A portion of the Naperville Riverwalk will be replaced with the proposed bridge replacement. The proposed riverwalk will maintain the existing width of 5 ft and have minor vertical alignment improvements.

1. Is the proposed work classified as repairs such as deck replacement, pavement resurfacing, or the armoring or filling of a scour hole? ☐ Yes ☒ No

2. Does the proposed work only consist of modifications to the existing structure which will occur above the regulatory 100-year flood profile? ☐ Yes ☒ No

Note: If the answer to question 1 or 2 is yes, no permit is required and questions 3 through 12 may be omitted.

3. Does the proposed work below the regulatory 100-year flood profile consist of widening of the existing structure by 12 feet or less? ☐ Yes ☒ No

Note: If yes, Regional Permit No. 2 applies and questions 4 through 9 may be omitted.

4. Is the proposed improvement, including the approach roadway, more restrictive to normal and flood flows than the existing structure? ☐ Yes ☒ No

5. Is a Channel Modification proposed? ☐ Yes ☒ No

6. Are there any buildings or structures located upstream in the 100-year floodplain within the influence of the structure backwater? ☐ Yes ☒ No

6a. If no, does the backwater of the proposed improvement exceed the backwater of the existing structure by more than 0.1 foot? ☐ Yes ☒ No

6b. If yes, does the proposed backwater exceed the natural high water elevation by more than 0.1 foot? ☐ Yes ☐ No

7. Are transitions required for this project? ☐ Yes ☒ No

8. Is the flood profile at the project site impacted by backwater from a downstream receiving stream? ☐ Yes ☒ No

   If yes, list frequency of starting elevation for analysis:

9. Is backwater from a downstream structure affecting the flood profile at the project site? ☐ Yes ☒ No

   9a. Was the existing downstream structure used in the analysis for determining flood profile at the project site? years? (Attach documentation) ☐ Yes ☐ No

   9b. Is the downstream structure scheduled for improvement in the next 5 ☐ Yes ☐ No

   9c. Was the proposed downstream improvement used in the analysis? ☐ Yes ☐ No

10. Is a floodway map change required due to the proposed project? ☐ Yes ☒ No

11. Will fill or material be placed in the floodway due to the proposed work? ☒ Yes ☐ No

   11a. If yes, is compensatory storage provided at the project location? (Attach a copy of completed Attachment A) ☒ Yes ☐ No

   11b. If the answer to 11a is no, is compensatory storage provided at another location? If yes, give location and attach a copy of completed Attachment A. ☐ Yes ☐ No

   11c. Has compensatory storage relief been granted? (Attach Documentation) ☐ Yes ☒ No

12. Coordination based on Memorandum of Agreement has occurred with Agency(ies) (Attach documentation):. ☐ Yes ☒ No

All engineering analysis has been performed by me or under my direct supervision.

Signature: _____ IL/P.E. #: 062-052081

Date: July 22, 2020 P.E. Expiration Date: 11/20/2021

FOR DEPARTMENTAL USE ONLY

Is a permit required for this project? ☐ Yes ☐ No

If yes, specify type of permit: ☐ Floodway, ☐ Regional 1, ☐ Regional 2

Permit Summary
(Attachment A - Compensatory Storage)

Part of Permit Summary for Floodway Construction in Northeast Illinois:

☐ Phase I (Preliminary) ☒ Phase II (Final)

Applicant Agency:	City of Naperville	County:	DuPage
Route:	FAU 2552 – Washington Street	Stream:	West branch of the DuPage River
Section:	16-00167-00-BR	SN:	022-0030 (EX) / 022-6749 (PR)

Provide the following information for Item 11:

a. Flood Water Elevations (Natural): 100-year 672.2 ft. 10-year 670.4 ft.
Normal 661.4 ft.

b. Determine the amount of fill or material being placed in the floodway:

1. Between the 100-year and 10-year flood elevation 0 cu. yds.
2. Between the 10-year and normal water elevation 553.41 cu. yds.

c. Determine the volume being provided to compensate for above item b:
(i.e. from structures removal, excavation, etc.)

1. Between the 100-year and 10-year flood elevation 383.44 cu. yds.
2. Between the 10-year and normal water elevation 398.26 cu. yds.

d. Mark on the exhibits the location and amount of compensatory storage to be excavated. Also show the location of floodway and floodplain boundaries. (Include a set of plans and cross sections)

Attach copy of calculations and Exhibit(s) reflecting the above finding.

All engineering analysis has been performed by me or under my direct supervision.

Signature:		IL/P.E. #:	062-052081
Date:	July 22, 2020	P.E. Expiration Date:	11/30/2021

Illinois Environmental Protection Agency

1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276 • (217) 782-3397

Uncontaminated Soil Certification
by Licensed Professional Engineer or Licensed Professional Geologist
for Use of Uncontaminated Soil as Fill in a CCDD or Uncontaminated Soil Fill Operation LPC-663
Revised in accordance with 35 Ill. Adm. Code 1100, as
amended by PCB R2012-009 (eff. Aug. 27, 2012)

This certification form is to be used by professional engineers and professional geologists to certify, pursuant to 35 Ill. Adm. Code 1100.205(a)(1)(B), that soil (i) is uncontaminated soil and (ii) is within a pH range of 6.26 to 9.0. If you have questions about this form, please telephone the Bureau of Land Permit Section at 217/524-3300.

This form may be completed online, saved locally, printed and signed, and submitted to prospective clean construction or demolition debris (CCDD) fill operations or uncontaminated soil fill operations.

I. Source Location Information

(Describe the location of the source of the uncontaminated soil)

Project Name: Washington Street Bridge PSI Office Phone Number, if available:

Physical Site Location (address, including number and street):
Washington Street - Chicago Avenue to Aurora Avenue

City: Naperville State: IL Zip Code: 60540

County: DuPage Township:

Lat/Long of approximate center of site in decimal degrees (DD.ddddd) to five decimal places (e.g., 40.67890, -90.12345):

Latitude: 41.77061 (Decimal Degrees) Longitude: - 88.14822 (-Decimal Degrees)

Identify how the lat/long data were determined:

○ GPS ○ Map Interpolation ○ Photo Interpolation ○ Survey ☑ Other

Google Earth Approximation

IEPA Site Number(s), if assigned: BOL: BOW: BOA:

Approximate Start Date (mm/dd/yyyy): Approximate End Date (mm/dd/yyyy):

Estimated Volume of debris (cu. Yd.):

II. Owner/Operator Information for Source Site

Site Owner

Name: City of Naperville
Street Address: 400 S. Eagle Street
PO Box:
City: Naperville State: IL
Zip Code: 60540 Phone: 630-420-6111
Contact:
Email, if available:

Site Operator

Name:
Street Address:
PO Box:
City: State:
Zip Code: Phone:
Contact:
Email, if available:

This Agency is authorized to require this information under Section 4 and Title X of the Environmental Protection Act (415 ILCS 5/4, 5/39). Failure to disclose this information may result in: a civil penalty of not to exceed $50,000 for the violation and an additional civil penalty of not to exceed $10,000 for each day during which the violation continues (415 ILCS 5/42). This form has been approved by the Forms Management Center.

Project Name: Washington Street Bridge PSI Latitude: 41.77061 Longitude: - 88.14822

Uncontaminated Soil Certification

III. Basis for Certification and Attachments

For each item listed below, reference the attachments to this form that provide the required information.

a. A Description of the soil sample points and how they were determined to be sufficient in number and appropriately located 35 Ill. Adm. Code 1100.610(a)]:

A database review was completed in the 2017 PESA for the Project Area, which consists of commercial properties. One potentially impacted properties (PIP) was identified in the PESA and 3 additional sites identified prior to PSI in connection with the Project Area through the database review and site visit. Refer to the attachments for additional information.

b. Analytical soil testing results to show that soil chemical constituents comply with the maximum allowable concentrations established pursuant to 35 Ill. Adm. Code Part 1100, Subpart F and that the soil pH is within the range of 6.25 to 9.0,including the documentation of chain of custody control, a copy of the lab analysis; the accreditation status of the laboratory performing the analysis; and certification by an authorized agent of the laboratory that the analysis has been performed in accordance with the Agency's rules for the accreditation of environmental and the scope of the accreditation [35 Ill. Adm. Code 1100.201 (g), 1100.205(a), 1100.610]:

Nine soil borings and two sediment samples were advanced in the Project Area on May 15th, 2020. Samples were analyzed for one or more of: VOCs, PNAs, RCRA Metals, and pH. With exception of soils in the vicinity of WS-5, WS-6, AA-3, and SED-2 results achieve CCDD requirements. Refer to the attachments for additional information.

IV. Certification Statement, Signature and Seal of Licensed Professional Engineer or Licensed Professional Geologist

I, Jeremy J. Reynolds, P.G. (name of licensed professional engineer or geologist) certify under penalty of law that the information submitted, including but not limited to, all attachments and other information, is to the best of my knowledge and belief, true, accurate and complete. In accordance with the Environmental Protection Act [415 ILCS 5/22.51 or 22.51a] and 35 Ill. Adm. Code 1100.205(a), I certify that the soil from this site is uncontaminated soil. I also certify that the soil pH is within the range of 6.25 to 9.0. In addition, I certify that the soil has not been removed from the site as part of a cleanup or removal of contaminants. All necessary documentation is attached.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Company Name:	Huff & Huff, Inc.
Street Address:	915 Harger Rd Suite 330
City:	Oak Brook State: IL Zip Code: 60523
Phone:	(630) 684-9100

Jeremy J. Reynolds, P.G.
Printed Name:

Licensed Professional Engineer or
Licensed Professional Geologist Signature:

Jul 23, 2020
Date:

P.E or L.P.G. Seal:

LICENSED PROFESSIONAL GEOLOGIST
JEREMY J. REYNOLDS
196-001170
ILLINOIS
3/21

ACCESSIBLE PEDESTRIAN SIGNALS (APS) (BDE)

Effective: April 1, 2003
Revised: January 1, 2022

Description. This work shall consist of furnishing and installing accessible pedestrian signals (APS). Each APS shall consist of an interactive vibrotactile pedestrian pushbutton with speaker, an informational sign, a light emitting diode (LED) indicator light, a solid-state electronic control board, a power supply, wiring, and mounting hardware. The APS shall meet the requirements of the MUTCD and Sections 801 and 888 of the Standard Specifications, except as modified herein.

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 and shall be deactivated during the associated walk indication and when associated traffic signals are in flashing mode. 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 "Wait".

If two accessible pedestrian pushbuttons are placed less than 10 ft (3 m) apart or placed on the same pole, the audible walk indication shall be a speech walk message. This message shall sound throughout the WALK interval only. The verbal message shall be modeled after: "'Street Name.' Walk Sign is on to cross "Street Name'." For signalized intersections utilizing exclusive pedestrian phasing, the verbal message shall be "Walk sign is on for all crossings". In addition, a speech pushbutton information message shall be provided by actuating the APS pushbutton when the WALK interval is not timing. This verbal message shall be modeled after: "Wait. Wait to cross 'Street Name' at 'Street Name'".

Where two accessible pedestrian pushbuttons are separated by at least 10 ft (3 m), the walk indication shall be an audible percussive tone. It shall repeat at 8 to 10 ticks per second with a dominant frequency of 880 Hz.

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.

At locations with railroad interconnection, an additional speech message stating "Walk time shortened when train approaches" shall be used after the speech walk message. At locations with emergency vehicle preemption, an additional speech message "Walk time shortened when emergency vehicle approaches" shall be used after the speech walk message.

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).

A red LED shall be located on or near the pushbutton which, when activated, acknowledges the pedestrians request to cross the street.

Signage. A sign shall be located immediately above the pedestrian pushbutton and parallel to the crosswalk controlled by the pushbutton. The sign shall conform to one of the following standard MUTCD designs: R10-3, R10-3a, R10-3e, R10-3i, R10-4, and R10-4a.

Tactile Arrow. A tactile arrow, pointing in the direction of travel controlled by a pushbutton, shall be provided on the pushbutton.

Vibrotactile Feature. The pushbutton shall pulse when depressed and shall vibrate continuously throughout the WALK interval.

Method of Measurement. This work will be measured for payment as each, per pushbutton.

Basis of Payment. This work will be paid for at the contract unit price per each for ACCESSIBLE PEDESTRIAN SIGNALS.

80099

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).

	COARSE AGGREGATE SUBGRADE GRADATIONS				
Grad No.	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	

	COARSE AGGREGATE SUBGRADE GRADATIONS (Metric)				
Grad No.	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."

80274

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, tons = A x D x (G_{mb} x 46.8) / 2000. For HMA mixtures measured in square meters: Q, metric tons = A x D x (G_{mb} x 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, tons = V x 8.33 lb/gal x SG / 2000
For bituminous materials measured in liters: Q, metric tons = V x 1.0 kg/L x 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:

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.

80173

BLENDED FINELY DIVIDED MINERALS (BDE)

Effective: April 1, 2021

Revise the second paragraph of Article 1010.01 of the Standard Specifications to read:

"Different sources or types of finely divided minerals shall not be mixed or used alternately in the same item of construction, except as a blended finely divided mineral product according to Article 1010.06."

Add the following article to Section 1010 of the Standard Specifications:

"**1010.06 Blended Finely Divided Minerals.** Blended finely divided minerals shall be the product resulting from the blending or intergrinding of two or three finely divided minerals. Blended finely divided minerals shall be according to ASTM C 1697, except as follows.

(a) Blending shall be accomplished by mechanically or pneumatically intermixing the constituent finely divided minerals into a uniform mixture that is then discharged into a silo for storage or tanker for transportation.

(b) The blended finely divided mineral product will be classified according to its predominant constituent or the manufacturer's designation and shall meet the chemical requirements of its classification. The other finely divided mineral constituent(s) will not be required to conform to their individual standards."

80436

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."

80384

CONSTRUCTION AIR QUALITY – DIESEL RETROFIT (BDE)

Effective: June 1, 2010
Revised: November 1, 2014

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 using the phased in approach shown below. Equipment that is of a model year older than the year given for that equipment's respective horsepower range shall be retrofitted:

Effective Dates	Horsepower Range	Model Year
June 1, 2010 1/	600-749	2002
	750 and up	2006
June 1, 2011 2/	100-299	2003
	300-599	2001
	600-749	2002
	750 and up	2006
June 1, 2012 2/	50-99	2004
	100-299	2003
	300-599	2001
	600-749	2002
	750 and up	2006

1/ Effective dates apply to Contractor diesel powered off-road equipment assigned to the contract.

2/ Effective dates apply to Contractor and subcontractor diesel powered off-road equipment assigned to the contract.

The retrofit emission control devices shall achieve a minimum PM emission reduction of 50 percent and shall be:

a) Included on the U.S. Environmental Protection Agency (USEPA) *Verified Retrofit Technology List* (http://www.epa.gov/cleandiesel/verification/verif-list.htm), or verified by the California Air Resources Board (CARB) (http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm); or

b) 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.

80261

DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (BDE)

Effective: September 1, 2000
Revised: March 2, 2019

FEDERAL 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 by the Department in accordance with the requirements of 49 CFR Part 26 and listed in the Illinois Unified Certification Program (IL UCP) DBE Directory.

STATE OBLIGATION. This Special Provision will also be used by the Department to satisfy the requirements of the Business Enterprise for Minorities, Females, and Persons with Disabilities Act, 30 ILCS 575. When this Special Provision is used to satisfy state law requirements on 100 percent state-funded contracts, the federal government has no involvement in such contracts (not a federal-aid contract) and no responsibility to oversee the implementation of this Special Provision by the Department on those contracts. DBE participation on 100 percent state-funded contracts will not be credited toward fulfilling the Department's annual overall DBE goal required by the US Department of Transportation to comply with the federal DBE program requirements.

CONTRACTOR ASSURANCE. The Contractor makes the following assurance and agrees to include the assurance in each subcontract the Contractor signs with a subcontractor.

> 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 contracts funded in whole or in part with federal or state funds. 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:
>
> (a) Withholding progress payments;
>
> (b) Assessing sanctions;
>
> (c) Liquidated damages; and/or
>
> (d) Disqualifying the Contractor from future bidding as non-responsible.

OVERALL GOAL SET FOR THE DEPARTMENT. As a requirement of compliance with 49 CFR Part 26, the Department has set an overall goal for DBE participation in its federally assisted contracts. That goal applies to all federal-aid funds the Department will expend in its federally assisted contracts for the subject reporting fiscal year. The Department is required to make a good faith effort to achieve the overall goal. The dollar amount paid to all approved DBE companies performing work called for in this contract is eligible to be credited toward fulfillment of the Department's overall goal.

CONTRACT GOAL TO BE ACHIEVED BY THE CONTRACTOR. This contract includes a specific DBE utilization goal established by the Department. The goal has been included because

the Department has determined the work of this contract has subcontracting opportunities that may be suitable for performance by DBE companies. The determination is based on an assessment of the type of work, the location of the work, and the availability of DBE companies to do a part of the work. The assessment indicates, in the absence of unlawful discrimination and in an arena of fair and open competition, DBE companies can be expected to perform 20 % 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. A bidder makes a good faith effort for award consideration if either of the following is done in accordance with the procedures set for in this Special Provision:

(a) The bidder documents enough DBE participation has been obtained to meet the goal or,

(b) The bidder documents a good faith effort has been made to meet the goal, even though the effort did not succeed in obtaining enough DBE participation to meet the goal.

DBE LOCATOR REFERENCES. Bidders shall consult the IL UCP DBE Directory as a reference source for DBE-certified companies. In addition, the Department maintains a letting and item specific DBE locator information system whereby DBE companies can register their interest in providing quotes on particular bid items advertised for letting. Information concerning DBE companies willing to quote work for particular contracts may be obtained by contacting the Department's Bureau of Small Business Enterprises at telephone number (217) 785-4611, or by visiting the Department's website at:
http://www.idot.illinois.gov/doing-business/certifications/disadvantaged-business-enterprise-certification/il-ucp-directory/index.

BIDDING PROCEDURES. Compliance with this Special Provision is a material bidding requirement and failure of the bidder to comply will render the bid not responsive.

The bidder shall submit a DBE Utilization Plan (form SBE 2026), and a DBE Participation Statement (form SBE 2025) for each DBE company proposed for the performance of work to achieve the contract goal, with the bid. If the Utilization Plan indicates the contract goal will not be met, documentation of good faith efforts shall also be submitted. The documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor is selected over a DBE for work on the contract. The required forms and documentation must 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 Utilization Plan if it does not meet the bidding procedures set forth herein and the bid will be declared not responsive. In the event the bid is declared not 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.

GOOD FAITH EFFORT PROCEDURES. 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 enough DBE participation has been obtained or document the good faith efforts of the bidder, in the event enough DBE participation has not been obtained, before the Department will 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 bidder submits sufficient documentation of a good faith effort to meet the contract goal pursuant to 49 CFR Part 26, Appendix A. This means the bidder

must show that all necessary and reasonable steps were taken to achieve the contract goal. Necessary and reasonable steps are those which, by their scope, intensity and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not successful. The Department will consider the quality, quantity, and intensity of the kinds of efforts the bidder has made. Mere *pro forma* efforts, in other words efforts done as a matter of form, are not good faith efforts; rather, the bidder is expected to have taken genuine efforts that would be reasonably expected of a bidder actively and aggressively trying to obtain DBE participation sufficient to meet the contract goal.

(a) The following is a list of types of action that the Department will consider as part of the evaluation of the bidder's good faith efforts to obtain participation. These listed factors are not intended to be a mandatory checklist and are not intended to be exhaustive. Other factors or efforts brought to the attention of the Department may be relevant in appropriate cases and will be considered by the Department.

(1) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBE companies that have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBE companies to respond to the solicitation. The bidder must determine with certainty if the DBE companies are interested by taking appropriate steps to follow up initial solicitations.

(2) Selecting portions of the work to be performed by DBE companies in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the Contractor might otherwise prefer to perform these work items with its own forces.

(3) Providing interested DBE companies with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

(4) a. Negotiating in good faith with interested DBE companies. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBE companies that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBE companies to perform the work.

b. A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBE companies is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also the ability or desire of a bidder to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Bidders are not, however, required to accept higher quotes from DBE companies if the price

difference is excessive or unreasonable. In accordance with the above Bidding Procedures, the documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract.

(5) Not rejecting DBE companies as being unqualified without sound reasons based on a thorough investigation of their capabilities. The bidder's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the bidder's efforts to meet the project goal.

(6) Making efforts to assist interested DBE companies in obtaining bonding, lines of credit, or insurance as required by the recipient or Contractor.

(7) Making efforts to assist interested DBE companies in obtaining necessary equipment, supplies, materials, or related assistance or services.

(8) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBE companies.

(b) If the Department determines the bidder has made a good faith effort to secure the work commitment of DBE companies to meet the contract goal, the Department will award the contract provided it is otherwise eligible for award. If the Department determines the bidder has failed to meet the requirements of this Special Provision or that a good faith effort has not been made, the Department will notify the responsible company official designated in the Utilization Plan that the bid is not responsive. The notification will also include a statement of reasons for the adverse determination. If the Utilization Plan is not approved because it is deficient as a technical matter, unless waived by the Department, the bidder will be notified and will be allowed no more than a five calendar day period to cure the deficiency.

(c) The bidder may request administrative reconsideration of an adverse determination by emailing the Department at "DOT.DBE.UP@illinois.gov" within the five calendar days after the receipt of the notification of the determination. The determination shall become final if a request is not made on or before the fifth calendar day. A request may provide additional written documentation or argument concerning the issues raised in the determination statement of reasons, provided the documentation and arguments address efforts made prior to submitting the bid. The request will be reviewed by the Department's Reconsideration Officer. The Reconsideration Officer will extend an opportunity to the bidder to meet in person to consider all issues of documentation and whether the bidder made a good faith effort to meet the goal. After the review by the Reconsideration Officer, the bidder will be sent a written decision within ten working days after receipt of the request for reconsideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. A final decision by the Reconsideration Officer that a good faith effort was made shall approve the Utilization Plan submitted by the bidder and shall clear the contract for award. A final decision that a good faith effort was not made shall render the bid not responsive.

CALCULATING DBE PARTICIPATION. The Utilization Plan values represent work anticipated to be performed 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 companies. 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 counting guidelines are provided in 49 CFR Part 26.55, the provisions of which govern over the summary contained herein.

(a) DBE as the Contractor: 100 percent goal credit for that portion of the work performed by the DBE's own forces, including the cost of materials and supplies. Work that a DBE subcontracts to a non-DBE does not count toward the DBE goals.

(b) DBE as a joint venture Contractor: 100 percent goal credit for that portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work performed by the DBE's own forces.

(c) DBE as a subcontractor: 100 percent goal credit for the work of the subcontract performed by the DBE's own forces, including the cost of materials and supplies, excluding the purchase of materials and supplies or the lease of equipment by the DBE subcontractor from the Contractor or its affiliates. Work that a DBE subcontractor in turn subcontracts to a non-DBE does not count toward the DBE goal.

(d) DBE as a trucker: 100 percent goal credit for trucking participation provided the DBE is responsible for the management and supervision of the entire trucking operation for which it is responsible. At least one truck owned, operated, licensed, and insured by the DBE must be used on the contract. Credit will be given for the following:

(1) The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the contract.

(2) The DBE may also lease trucks from a non-DBE firm, including from an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit only for the fee or commission is receives as a result of the lease arrangement.

(e) DBE as a material supplier:

(1) 60 percent goal credit for the cost of the materials or supplies purchased from a DBE regular dealer.

(2) 100 percent goal credit for the cost of materials of supplies obtained from a DBE manufacturer.

(3) 100 percent credit for the value of reasonable fees and commissions for the procurement of materials and supplies if not a DBE regular dealer or DBE manufacturer.

CONTRACT COMPLIANCE. Compliance with this Special Provision is an essential part of the contract. 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 goals has been paid to the DBE. The following administrative procedures and remedies govern the compliance by the Contractor with the contractual obligations established by the Utilization Plan. After approval of the Utilization Plan and award of the contract, the Utilization Plan and individual DBE Participation Statements become part of the contract. If the Contractor did not succeed in obtaining enough DBE participation to achieve the advertised contract goal, and the Utilization Plan was approved and contract awarded based upon a determination of good faith, the total dollar value of DBE work calculated in the approved Utilization Plan as a percentage of the awarded contract value shall become the amended contract goal. All work indicated for performance by an approved DBE shall be performed, managed, and supervised by the DBE executing the DBE Participation Commitment Statement.

(a) NO AMENDMENT. No amendment to the Utilization Plan may be made without prior written approval from the Department's Bureau of Small Business Enterprises. All requests for amendment to the Utilization Plan shall be emailed to the Department at DOT.DBE.UP@illinois.gov.

(b) CHANGES TO WORK. Any deviation from the DBE condition-of-award or contract plans, specifications, or special provisions must be approved, in writing, by the Department as provided elsewhere in the Contract. The Contractor shall notify affected DBEs in writing of any changes in the scope of work which result in a reduction in the dollar amount condition-of-award to the contract. Where the revision includes work committed to a new DBE subcontractor, not previously involved in the project, then a Request for Approval of Subcontractor, Department form BC 260A or AER 260A, must be signed and submitted. If the commitment of work is in the form of additional tasks assigned to an existing subcontract, a new Request for Approval of Subcontractor will not be required. However, the Contractor must document efforts to assure the existing DBE subcontractor is capable of performing the additional work and has agreed in writing to the change.

(c) SUBCONTRACT. The Contractor must provide copies of 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.

(d) ALTERNATIVE WORK METHODS. In addition to the above requirements for reductions in the condition of award, additional requirements apply to the two cases of Contractor-initiated work substitution proposals. Where the contract allows alternate work methods which serve to delete or create underruns in condition of award DBE work, and the Contractor selects that alternate method or, where the Contractor proposes a substitute work method or material that serves to diminish or delete work committed to a DBE and replace it with other work, then the Contractor must demonstrate one of the following:

(1) The replacement work will be performed by the same DBE (as long as the DBE is certified in the respective item of work) in a modification of the condition of award; or

(2) The DBE is aware its work will be deleted or will experience underruns and has agreed in writing to the change. If this occurs, the Contractor shall substitute other work of

equivalent value to a certified DBE or provide documentation of good faith efforts to do so; or

(3) The DBE is not capable of performing the replacement work or has declined to perform the work at a reasonable competitive price. If this occurs, the Contractor shall substitute other work of equivalent value to a certified DBE or provide documentation of good faith efforts to do so.

(e) TERMINATION AND REPLACEMENT PROCEDURES. The Contractor shall not terminate or replace a DBE listed on the approved Utilization Plan, or perform with other forces work designated for a listed DBE except as provided in this Special Provision. The Contractor shall utilize the specific DBEs listed to perform the work and supply the materials for which each is listed unless the Contractor obtains the Department's written consent as provided in subsection (a) of this part. Unless Department consent is provided for termination of a DBE subcontractor, the Contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the DBE in the Utilization Plan.

As stated above, the Contractor shall not terminate or replace a DBE subcontractor listed in the approved Utilization Plan without prior written consent. This includes, but is not limited to, instances in which the Contractor seeks to perform work originally designated for a DBE subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm. Written consent will be granted only if the Bureau of Small Business Enterprises agrees, for reasons stated in its concurrence document, that the Contractor has good cause to terminate or replace the DBE firm. Before transmitting to the Bureau of Small Business Enterprises any request to terminate and/or substitute a DBE subcontractor, the Contractor shall give notice in writing to the DBE subcontractor, with a copy to the Bureau, of its intent to request to terminate and/or substitute, and the reason for the request. The Contractor shall give the DBE five days to respond to the Contractor's notice. The DBE so notified shall advise the Bureau and the Contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why the Bureau should not approve the Contractor's action. If required in a particular case as a matter of public necessity, the Bureau may provide a response period shorter than five days.

For purposes of this paragraph, good cause includes the following circumstances:

(1) The listed DBE subcontractor fails or refuses to execute a written contract;

(2) The listed DBE subcontractor fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards. Provided, however, that good cause does not exist if the failure or refusal of the DBE subcontractor to perform its work on the subcontract results from the bad faith or discriminatory action of the Contractor;

(3) The listed DBE subcontractor fails or refuses to meet the Contractor's reasonable, nondiscriminatory bond requirements;

(4) The listed DBE subcontractor becomes bankrupt, insolvent, or exhibits credit unworthiness;

(5) The listed DBE subcontractor is ineligible to work on public works projects because of suspension and debarment proceedings pursuant 2 CFR Parts 180, 215 and 1200 or applicable state law.

(6) The Contractor has determined the listed DBE subcontractor is not a responsible contractor;

(7) The listed DBE subcontractor voluntarily withdraws from the projects and provides written notice to the Contractor of its withdrawal;

(8) The listed DBE is ineligible to receive DBE credit for the type of work required;

(9) A DBE owner dies or becomes disabled with the result that the listed DBE subcontractor is unable to complete its work on the contract;

(10) Other documented good cause that compels the termination of the DBE subcontractor. Provided, that good cause does not exist if the Contractor seeks to terminate a DBE it relied upon to obtain the contract so that the Contractor can self-perform the work for which the DBE contractor was engaged or so that the Contractor can substitute another DBE or non-DBE contractor after contract award.

When a DBE is terminated or fails to complete its work on the Contract for any reason, the Contractor shall make a good faith effort to find another DBE to substitute for the original DBE to perform at least the same amount of work under the contract as the terminated DBE to the extent needed to meet the established Contract goal. The good faith efforts shall be documented by the Contractor. If the Department requests documentation under this provision, the Contractor shall submit the documentation within seven days, which may be extended for an additional seven days if necessary at the request of the Contractor. The Department will provide a written determination to the Contractor stating whether or not good faith efforts have been demonstrated.

(f) FINAL PAYMENT. After the performance of the final item of work or delivery of material by a DBE and final payment therefore 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 on Department form SBE 2115 to the Resident Engineer. If full and final payment has not been made to the DBE, the DBE Payment Agreement shall indicate whether a disagreement as to the payment required exists between the Contractor and the DBE or if the Contractor believes the work has not been satisfactorily completed. 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. The Contractor may request an administrative reconsideration of any amount deducted as damages pursuant to subsection (h) of this part.

(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.

(h) RECONSIDERATION. Notwithstanding any other provision of the contract, including but not limited to Article 109.09 of the Standard Specifications, the Contractor may request

administrative reconsideration of a decision to deduct the amount of the goal not achieved as liquidated damages. A request to reconsider shall be delivered to the Contract Compliance Section and shall be handled and considered in the same manner as set forth in paragraph (c) of “Good Faith Effort Procedures” of this Special Provision, except a final decision that a good faith effort was not made during contract performance to achieve the goal agreed to in the Utilization Plan shall be the final administrative decision of the Department. The result of the reconsideration process is not administratively appealable to the U.S. Department of Transportation.

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:

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.

80229

HOT-MIX ASPHALT – PATCHING (BDE)

Effective: April 1, 2022

Replace Article 442.08(b) of the Standard Specifications with the following:

"(b) Density. The density of the compacted HMA shall be according to Articles 1030.06, 1030.09(b), 1030.09(c), and 1030.09(f)."

80444

PORTLAND CEMENT CONCRETE – HAUL TIME (BDE)

Effective: July 1, 2020

Revise Article 1020.11(a)(7) of the Standard Specifications to read:

"(7) Haul Time. Haul time shall begin when the delivery ticket is stamped. The delivery ticket shall be stamped no later than five minutes after the addition of the mixing water to the cement, or after the addition of the cement to the aggregate when the combined aggregates contain free moisture in excess of two percent by weight (mass). If more than one batch is required for charging a truck using a stationary mixer, the time of haul shall start with mixing of the first batch. Haul time shall end when the truck is emptied for incorporation of the concrete into the work. The maximum haul time shall be as follows.

Concrete Temperature at Point of Discharge, °F (°C)	Maximum Haul Time 1/ (minutes)	
	Truck Mixer or Truck Agitator	Nonagitator Truck
50 - 64 (10 - 17.5)	90	45
> 64 (> 17.5) - without retarder	60	30
> 64 (> 17.5) - with retarder	90	45

1/ To encourage start-up testing for mix adjustments at the plant, the first two trucks will be allowed an additional 15 minutes haul time whenever such testing is performed.

For a mixture which is not mixed on the jobsite, a delivery ticket shall be required for each load. The following information shall be recorded on each delivery ticket: (1) ticket number; (2) name of producer and plant location; (3) contract number; (4) name of Contractor; (5) stamped date and time batched; (6) truck number; (7) quantity batched; (8) amount of admixture(s) in the batch; (9) amount of water in the batch; and (10) Department mix design number.

For concrete mixed in jobsite stationary mixers, the above delivery ticket may be waived, but a method of verifying the haul time shall be established to the satisfaction of the Engineer."

80430

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.

TABLE 1 - SEEDING MIXTURES			
Class - Type		Seeds	lb/acre (kg/hectare)
1	Lawn Mixture 1/	Kentucky Bluegrass	100 (110)
		Perennial Ryegrass	60 (70)
		Festuca rubra ssp. r*ubra* (Creeping Red Fescue)	40 (50)
1A	Salt Tolerant Lawn Mixture 1/	Kentucky Bluegrass	60 (70)
		Perennial Ryegrass	20 (20)
		Festuca rubra ssp. *rubra* (Creeping Red Fescue)	20 (20)
		Festuca brevipilla (Hard Fescue)	20 (20)
		Puccinellia distans (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)
		Festuca rubra ssp. *rubra* (Creeping Red Fescue)	20 (20)
2	Roadside Mixture 1/	*Lolium arundinaceum* (Tall Fescue)	100 (110)
		Perennial Ryegrass	50 (55)
		Festuca rubra ssp. r*ubra* (Creeping Red Fescue)	40 (50)
		Red Top	10 (10)
2A	Salt Tolerant Roadside Mixture 1/	*Lolium arundinaceum* (Tall Fescue)	60 (70)
		Perennial Ryegrass	20 (20)
		Festuca rubra ssp. *rubra* (Creeping Red Fescue)	30 (20)
		Festuca brevipila (Hard Fescue)	30 (20)
		Puccinellia distans (Fults Saltgrass or Salty Alkaligrass)	60 (70)
3	Northern Illinois Slope Mixture 1/	*Elymus canadensis* (Canada Wild Rye) 5/	5 (5)
		Perennial Ryegrass	20 (20)
		Alsike Clover 4/	5 (5)
		Desmanthus illinoensis (Illinois Bundleflower) 4/ 5/	2 (2)
		Schizachyrium scoparium (Little Bluestem) 5/	12 (12)
		Bouteloua curtipendula (Side-Oats Grama) 5/	10 (10)
		Puccinellia distans (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)
		Elymus canadensis (Canada Wild Rye) 5/	20 (20)
		Panicum virgatum (Switchgrass) 5/	10 (10)
		Schizachyrium scoparium (Little Blue Stem) 5/	12 (12)
		Bouteloua curtipendula (Side-Oats Grama) 5/	10 (10)
		Dalea candida (White Prairie Clover) 4/ 5/	5 (5)
		Rudbeckia hirta (Black-Eyed Susan) 5/	5 (5)
		Oats, Spring	50 (55)

Class – Type		Seeds	lb/acre (kg/hectare)
4	Native Grass 2/ 6/	*Andropogon gerardi* (Big Blue Stem) 5/	4 (4)
		Schizachyrium scoparium (Little Blue Stem) 5/	5 (5)
		Bouteloua curtipendula (Side-Oats Grama) 5/	5 (5)
		Elymus canadensis (Canada Wild Rye) 5/	1 (1)
		Panicum virgatum (Switch Grass) 5/	1 (1)
		Sorghastrum nutans (Indian Grass) 5/	2 (2)
		Annual Ryegrass	25 (25)
		Oats, Spring	25 (25)
		Perennial Ryegrass	15 (15)
4A	Low Profile Native Grass 2/ 6/	*Schizachyrium scoparium* (Little Blue Stem) 5/	5 (5)
		Bouteloua curtipendula (Side-Oats Grama) 5/	5 (5)
		Elymus canadensis (Canada Wild Rye) 5/	1 (1)
		Sporobolus heterolepis (Prairie Dropseed) 5/	0.5 (0.5)
		Annual Ryegrass	25 (25)
		Oats, Spring	25 (25)
		Perennial Ryegrass	15 (15)
4B	Wetland Grass and Sedge Mixture 2/ 6/	Annual Ryegrass	25 (25)
		Oats, Spring	25 (25)
		Wetland Grasses (species below) 5/	6 (6)

Species:	% By Weight
Calamagrostis canadensis (Blue Joint Grass)	12
Carex lacustris (Lake-Bank Sedge)	6
Carex slipata (Awl-Fruited Sedge)	6
Carex stricta (Tussock Sedge)	6
Carex vulpinoidea (Fox Sedge)	6
Eleocharis acicularis (Needle Spike Rush)	3
Eleocharis obtusa (Blunt Spike Rush)	3
Glyceria striata (Fowl Manna Grass)	14
Juncus effusus (Common Rush)	6
Juncus tenuis (Slender Rush)	6
Juncus torreyi (Torrey's Rush)	6
Leersia oryzoides (Rice Cut Grass)	10
Scirpus acutus (Hard-Stemmed Bulrush)	3
Scirpus atrovirens (Dark Green Rush)	3
Bolboschoenus fluviatilis (River Bulrush)	3
Schoenoplectus tabernaemontani (Softstem Bulrush)	3
Spartina pectinata (Cord Grass)	4

Class – Type		Seeds	lb/acre (kg/hectare)
5	Forb with Annuals Mixture 2/ 5/ 6/	Annuals Mixture (Below) Forb Mixture (Below)	1 (1) 10 (10)

Annuals Mixture - Mixture not exceeding 25 % by weight of any one species, of the following:

Coreopsis lanceolata (Sand Coreopsis)
Leucanthemum maximum (Shasta Daisy)
Gaillardia pulchella (Blanket Flower)
Ratibida columnifera (Prairie Coneflower)
Rudbeckia hirta (Black-Eyed Susan)

Forb Mixture - Mixture not exceeding 5 % by weight PLS of any one species, of the following:

Amorpha canescens (Lead Plant) 4/
Anemone cylindrica (Thimble Weed)
Asclepias tuberosa (Butterfly Weed)
Aster azureus (Sky Blue Aster)
Symphyotrichum leave (Smooth Aster)
Aster novae-angliae (New England Aster)
Baptisia leucantha (White Wild Indigo) 4/
Coreopsis palmata (Prairie Coreopsis)
Echinacea pallida (Pale Purple Coneflower)
Eryngium yuccifolium (Rattlesnake Master)
Helianthus mollis (Downy Sunflower)
Heliopsis helianthoides (Ox-Eye)
Liatris aspera (Rough Blazing Star)
Liatris pycnostachya (Prairie Blazing Star)
Monarda fistulosa (Prairie Bergamot)
Parthenium integrifolium (Wild Quinine)
Dalea candida (White Prairie Clover) 4/
Dalea purpurea (Purple Prairie Clover) 4/
Physostegia virginiana (False Dragonhead)
Potentilla arguta (Prairie Cinquefoil)
Ratibida pinnata (Yellow Coneflower)
Rudbeckia subtomentosa (Fragrant Coneflower)
Silphium laciniatum (Compass Plant)
Silphium terebinthinaceum (Prairie Dock)
Oligoneuron rigidum (Rigid Goldenrod)
Tradescantia ohiensis (Spiderwort)
Veronicastrum virginicum (Culver's Root)

Class – Type		Seeds	lb/acre (kg/hectare)
5A	Large Flower Native Forb Mixture 2/ 5/ 6/	Forb Mixture (see below)	5 (5)
	Species:		% By Weight
	Aster novae-angliae (New England Aster)		5
	Echinacea pallida (Pale Purple Coneflower)		10
	Helianthus mollis (Downy Sunflower)		10
	Heliopsis helianthoides (Ox-Eye)		10
	Liatris pycnostachya (Prairie Blazing Star)		10
	Ratibida pinnata (Yellow Coneflower)		5
	Rudbeckia hirta (Black-Eyed Susan)		10
	Silphium laciniatum (Compass Plant)		10
	Silphium terebinthinaceum (Prairie Dock)		20
	Oligoneuron rigidum (Rigid Goldenrod)		10
5B	Wetland Forb 2/ 5/ 6/	Forb Mixture (see below)	2 (2)
	Species:		% By Weight
	Acorus calamus (Sweet Flag)		3
	Angelica atropurpurea (Angelica)		6
	Asclepias incarnata (Swamp Milkweed)		2
	Aster puniceus (Purple Stemmed Aster)		10
	Bidens cernua (Beggarticks)		7
	Eutrochium maculatum (Spotted Joe Pye Weed)		7
	Eupatorium perfoliatum (Boneset)		7
	Helenium autumnale (Autumn Sneeze Weed)		2
	Iris virginica shrevei (Blue Flag Iris)		2
	Lobelia cardinalis (Cardinal Flower)		5
	Lobelia siphilitica (Great Blue Lobelia)		5
	Lythrum alatum (Winged Loosestrife)		2
	Physostegia virginiana (False Dragonhead)		5
	Persicaria pensylvanica (Pennsylvania Smartweed)		10
	Persicaria lapathifolia (Curlytop Knotweed)		10
	Pychanthemum virginianum (Mountain Mint)		5
	Rudbeckia laciniata (Cut-leaf Coneflower)		5
	Oligoneuron riddellii (Riddell Goldenrod)		2
	Sparganium eurycarpum (Giant Burreed)		5
6	Conservation Mixture 2/ 6/	*Schizachyrium scoparium* (Little Blue Stem) 5/	5 (5)
		Elymus canadensis (Canada Wild Rye) 5/	2 (2)
		Buffalo Grass 5/ 7/	5 (5)
		Vernal Alfalfa 4/	15 (15)
		Oats, Spring	48 (55)
6A	Salt Tolerant Conservation Mixture 2/ 6/	*Schizachyrium scoparium* (Little Blue Stem) 5/	5 (5)
		Elymus canadensis (Canada Wild Rye) 5/	2 (2)
		Buffalo Grass 5/ 7/	5 (5)
		Vernal Alfalfa 4/	15 (15)
		Oats, Spring	48 (55)
		Puccinellia distans (Fults Saltgrass or Salty Alkaligrass)	20 (20)
7	Temporary Turf Cover Mixture	Perennial Ryegrass	50 (55)
		Oats, Spring	64 (70)

Notes:

1/ Seeding shall be performed when the ambient temperature has been between 45 ºF (7 ºC) and 80 ºF (27 ºC) 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 ºF (7 ºC) for a minimum of seven (7) consecutive days and ending when the ambient temperature exceeds 80 ºF (27 ºC) 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 KNO_3 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."

80445

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.

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)

80127

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."

80397

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%"

80391

SUBMISSION OF PAYROLL RECORDS (BDE)

Effective: April 1, 2021
Revised: November 1, 2022

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, the worker's address, the worker's telephone number when available, the worker's social security number, the worker's classification or classifications, the worker's gross and net wages paid in each pay period, the worker's number of hours worked each day, and the worker's starting and ending times of work each day. However, any Contractor or subcontractor who remits contributions to a fringe benefit fund that is not jointly maintained and jointly governed by one or more employers and one or more labor organization must additionally submit the worker's hourly wage rate, the worker's hourly overtime wage rate, the worker's hourly fringe benefit rates, the name and address of each fringe benefit fund, the plan sponsor of each fringe benefit, if applicable, and the plan administrator of each fringe benefit, if applicable.

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."

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."

80437

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 _3_. 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.

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."

80439

WEEKLY DBE TRUCKING REPORTS (BDE)

Effective: June 2, 2012
Revised: November 1, 2021

The Contractor shall submit a weekly report of Disadvantaged Business Enterprise (DBE) trucks hired by the Contractor or subcontractors (i.e. not owned by the Contractor or subcontractors) that are used for DBE goal credit.

The report shall be submitted 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.

80302

WORK ZONE TRAFFIC CONTROL DEVICES (BDE)

Effective: March 2, 2020

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 manufactured after December 31, 2019 shall be MASH-16 compliant. Category 1 devices manufactured on or before December 31, 2019, and compliant with NCHRP 350 or MASH 2009, may be used on contracts let before December 31, 2024.

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 manufactured after December 31, 2019 shall be MASH-16 compliant. Category 2 devices manufactured on or before December 31, 2019, and compliant with NCHRP 350 or MASH 2009, may be used on contracts let before December 31, 2024.

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-16 compliant. Category 3 devices manufactured on or before December 31, 2019, and compliant with NCHRP 350 or MASH 2009, 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 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-16 compliant is available, an NCHRP 350 or MASH-2009 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."

80427

HIGH LOAD MULTI-ROTATIONAL BEARINGS
Effective: October 13, 1988
Revised: September 2, 2022

Description. This work shall consist of furnishing and installing High Load Multi-Rotational type bearing assemblies at the locations shown on the plans.

High Load Multi-Rotational (HLMR) bearings shall be the type as shown on the plans, which will be one of the following:

a) Pot Bearings. These bearings shall be manufactured so that the rotational capability is provided by an assembly having a rubber disc of proper thickness, confined in a manner so it behaves like a fluid. The disc shall be installed, with a snug fit, into a steel cylinder and confined by a tight fitting piston. The outside diameter of the piston shall be no more than 0.03 in. (750 microns) less than the inside diameter of the cylinder at the interface level of the piston and rubber disc. The sides of the piston shall be beveled. PTFE sheets, or silicone grease shall be utilized to facilitate rotation of the rubber disc. Suitable brass sealing rings shall be provided to prevent any extrusion between piston and cylinder.

b) Shear Inhibited Disc Type Bearing. The Structural Element shall be restricted from shear by the pin and ring design and need not be completely confined as with the Pot Bearing design. The disc shall be a molded monolithic Polyether Urethane compound.

These bearings shall be further subdivided into one or more of the following classes:

1) Fixed. These allow rotation in any direction but are fixed against translation.

2) Guided Expansion. These allow rotation in any direction but translation only in limited directions.

3) Non-Guided Expansion. These allow rotation and translation in any direction.

The HLMR bearings shall be of the type and class specified and designed for the loads shown on the plans. The design of the masonry and sole bearing plates are based on detail assumptions which are not applicable to all suppliers and may require modifications depending on the supplier chosen by the Contractor. The overall depth dimension for the HLMR bearings shall be as specified on the plans. The horizontal dimensions shall be limited to the available bearing seat area.

Any modifications required to accommodate the bearings chosen shall be submitted to the Engineer for approval prior to ordering materials. Modifications may include the addition of steel filler plates or the adjustment of beam seat elevations. Adjustments to bridge seat elevations and accompanying reinforcement details shall be approved by the Structural Engineer of Record. Modifications required shall be made at no additional cost to the State. Inverted bearing or center-guided bearing configurations will not be permitted.

The Contractor shall comply with all manufacturer's material, fabrication and installation requirements specified.

All bearings shall be supplied by prequalified manufacturers. The Department will maintain a list of prequalified manufacturers. The Contractor's options are limited to those systems prequalified by the Department on the date that the contract is bid.

Submittals. Shop drawings shall be submitted to the Engineer for approval according to Article 105.04 of the Standard Specifications. All steel filler plate details shall be included in the shop drawings. In addition the Contractor shall furnish certified copies of the bearing manufacturer's test reports on the physical properties of the component materials for the bearings to be furnished and a certification by the bearing manufacturer stating the bearing assemblies furnished conform to all the requirements shown on the plans and as herein specified. Submittals with insufficient test data and supporting certifications will be rejected.

Materials. The materials for the HLMR bearing assemblies shall be according to the following:

(a) Elastomeric Materials. The rubber disc for Pot bearings shall be according to Article 1083.02(a) of the Standard Specifications.

(b) Polytetrafluoroethylene (PTFE) Material. The PTFE material shall be according to Article 1083.02(b) of the Standard Specifications, except that it shall be dimpled lubricated with a maximum coefficient of friction of 0.02 on stainless steel. The dimpled and lubricated PTFE surface shall comply with AASHTO 14.7.2. The friction requirement shall be as specified in the Long Term Deterioration Test required for prequalification and the Sliding Friction Test as specified below.

(c) Stainless Steel Sheets. The stainless steel sheets shall be of the thickness specified and shall be according to Article 1083.02(c).

(d) Structural Steel. All structural steel used in the bearing assemblies shall be according to AASHTO M 270, Grade 50 (M 270M Grade 345), unless otherwise specified.

(e) Threaded studs. The threaded stud, when required, shall conform to the requirements of Article 1083.02(d)(4) of the Standard Specifications.

(f) Polyether Urethane for Disc bearings shall be according to all of the following requirements:

PHYSICAL PROPERTY	ASTM TEST METHOD	REQUIREMENTS	
Hardness, Type D durometer	D 2240	45 Min	65 Max
Tensile Stress, psi (kPa) At 100% elongation, min	D 412	1500 psi (10,350 kPa)	2300 psi (15,900 kPa)
Tensile Stress, psi (kPa) At 200% elongation, min	D 412	2800 psi (19,300 kPa)	4000 psi (27,600 kPa)
Tensile Strength, psi (kPa), min	D 412	4000 psi (27,600 kPa)	6000 psi (41,400 kPa)
Ultimate Elongation, %, min	D 412	350	220
Compression Set 22 hr. at 158 °F (70 °C), Method B %, max	D 395	40	40

The physical properties for a durometer hardness between the minimum and maximum values shown above shall be determined by straight line interpolation.

Design. Bearing details shown on the contract plans are a schematic representation of the bearing. Actual design of the bearing shall be by the bearing manufacturer. The fabricator shall design the HLMR bearings according to the appropriate AASHTO Design Specifications noted on the bridge plans. The bearing shall be designed for the exact parameters specified in the Design Data table.

Fabrication. The bearings shall be complete factory-produced assemblies. They shall provide for rotation in all directions and for sliding, when specified, in directions as indicated on the plans. All bearings shall be furnished as a complete unit from one manufacturing source. All material used in the manufacture shall be new and unused with no reclaimed material incorporated into the finished assembly.

The translation capability for both guided and non-guided expansion bearings shall be provided by means of a polished stainless steel sliding plate that bears on a PTFE sheet bonded and recessed to the top surface of the piston or disc. The sliding element of expansion bearings shall be restrained against movement in the fixed direction by exterior guide bars capable of resisting the horizontal forces or 20 percent of the vertical design load on the bearing applied in any direction, whichever is greater. The sliding surfaces of the guide bar shall be of PTFE sheet and stainless steel. Guiding off of the fixed base, or any extension of the base, will not be permitted.

Structural steel plates shall be fabricated according to Article 505.04(l) of the Standard Specifications. Prior to shipment the exposed edges and other exposed portions of the structural steel plates shall be cleaned and given a corrosion protection coating as specified on the plans

and according to the applicable Special Provisions and Articles 506.03 and 506.04 of the Standard Specifications. During cleaning and coating the stainless steel, PTFE sheet and neoprene shall be protected from abrasion and coating material.

PTFE sheets shall be bonded to steel under factory controlled conditions using heat and pressure for the time required to set the epoxy adhesive used. The PTFE sheet shall be free from bubbles and the sliding surface shall be burnished to an absolutely smooth surface.

The steel piston and the steel cylinder for pot bearings shall each be machined from a solid piece of steel. The steel base cylinder shall be either integrally machined, recessed into with a snug fit, or continuously welded to its steel masonry plate. If the sole plate and piston are not one piece, the piston shall be recessed ⅜ inch into the sole plate.

If the bottom disc plate or base cylinder is recessed into the masonry plate, the designed thickness of the masonry plate shall take into account the depth of the recess. If the top disc plate is recessed into the sole plate, the designed thickness of the sole plate shall take into account the depth of the recess.

The shear resisting mechanism shall be machined from a solid piece of steel. Connection of the shear resisting mechanism to top and bottom disc plate shall be determined by the bearing fabricator.

Packaging. Each HLMR bearing assembly shall be fully assembled at the manufacturing plant and delivered to the construction site as complete units. The assemblies shall be packaged, crated or wrapped so the assemblies will not be damaged during handling, transporting and shipping. The bearings shall be held together with removable restraints so sliding surfaces are not damaged.

Centerlines shall be marked on both masonry and sole plates for alignment in the field. The bearings shall be shipped in moisture-proof and dust-proof covers.

Performance Testing. The following performance tests are required per lot on the project. A lot size shall be the number of bearings per class (fixed, guided expansion, non-guided expansion) on the project, but not to exceed 25 bearings per class. When multiple sizes of bearings are used on the same contract, they shall be grouped by class when determining lot sizes and amount of bearings to be tested. All tests shall be performed by the manufacturer prior to shipment.

Dimension Check. Each bearing shall be checked dimensionally to verify all bearing components are within tolerances. Failure to satisfy any dimensional tolerance shall be grounds for rejecting the bearing component or the entire bearing assembly.

Clearance Test. This test shall be performed on one bearing per lot. The bearing selected for this test shall be the one with the least amount of clearance based on the dimension check. The bearing assembly shall be loaded to its service limit state rated capacity at its full design rotation but not less than 0.02 radians to verify the required clearances exist. This test shall be performed twice for each bearing with the rotation oriented longitudinally with the bridge once in each direction. Any visual signs of rubbing or binding shall be grounds for rejection of the lot.

Proof Load Test. This test shall be performed on one bearing per lot. The bearing assembly shall be load tested to 150 percent of the service limit state rated capacity at a rotation of 0.02 radians. The load shall be maintained for 5 minutes, removed then reapplied for 5 minutes. If the load drops below the required value during either application, the test shall be restarted from the beginning. This test shall be performed twice for each bearing with the rotation oriented longitudinally with the bridge once in each direction.

The bearing shall be visually examined both during the test and upon disassembly after the test. Any resultant visual defects include, but are not limited to:

1. Extruded or deformed elastomer, polyether urethane, or PTFE.

2. Insufficient clearances such as evidence of metal to metal contact between the pot wall and the top or sole plate.

3. Damaged components such as cracked steel, damaged seal rings, or damaged limiting rings.

4. Bond failure.

If any of the above items are found it shall be grounds for rejection of the lot.

Sliding Friction Test. For expansion bearings, this test shall be performed on one bearing per lot. The sliding surfaces shall be thoroughly cleaned with a degreasing solvent. No lubrication other than that specified for the bearing shall be used. The bearing shall be loaded to its service limit state rated capacity for 1 hour prior to and throughout the duration of the sliding test. At least 12 cycles of plus and minus sliding with an amplitude equaling the smaller of the design displacement and 1 inch (25 mm) shall then be applied. The average sliding speed shall be between 0.1 inch and 1.0 inches (2.5 mm and 25 mm) per minute. The sliding friction coefficient shall be computed for each direction of each cycle and its mean and standard deviation shall be computed for the sixth through twelfth cycles.

The friction coefficient for the first movement and the mean plus two standard deviations for the sixth through twelfth cycles shall not exceed the design value used. In addition, the mean value for the sixth through twelfth cycles shall not exceed 2/3 of the design value used. Failure of either of these shall result in rejection of the lot.

The bearing shall also be visually examined both during and after the testing, any resultant defects, such as bond failure, physical destruction, or cold flow of the PTFE shall also be cause for rejection of the lot.

The Contractor shall furnish a notarized certification from the bearing manufacturer stating the HLMR bearings have been performance tested as specified, and a. purchase order prior to fabrication. The purchase order shall contain, as a minimum, the quantity and size of each type of bearing furnished. The notarized certifications and the purchase order shall be submitted in

one package to the Engineer of Tests at the Bureau of Materials and Physical Research (126 East Ash Springfield, IL 62704). The Department reserves the right to perform any of the specified tests on one or more of the furnished bearings. If the tested bearing shows failure it shall be replaced and the remaining bearings shall be similarly tested for acceptance at the Contractor's expense.

The manufacturer shall furnish samples of component materials used in the bearings, for testing by the Department, to the Engineer of Tests at the Bureau of Materials and Physical Research (126 East Ash Springfield, IL 62704). The required components shall be those components of HLMR bearings that are consistent with elastomeric bearing components according to Article 1083.04 of the Standard Specifications.

Installation. The HLMR bearings shall be erected according to Article 521.05 of the Standard Specifications.

Exposed edges and other exposed portions of the structural steel plates shall be field painted as specified for Structural Steel.

Basis of Payment. This work will be paid for at the contract unit price each for HIGH LOAD MULTI-ROTATIONAL BEARINGS, POT , FIXED; HIGH LOAD MULTI-ROTATIONAL BEARINGS, POT, GUIDED EXPANSION; HIGH LOAD MULTI-ROTATIONAL BEARINGS, POT, NON-GUIDED EXPANSION; HIGH LOAD MULTI-ROTATIONAL BEARINGS, DISC, FIXED; HIGH LOAD MULTI-ROTATIONAL BEARINGS, DISC, GUIDED EXPANSION; or HIGH LOAD MULTI-ROTATIONAL BEARINGS, DISC, NON-GUIDED EXPANSION of the load capacity specified.

When the fabrication and erection of HLMR bearings is accomplished under separate contracts, the applicable requirements of Article 505.09 shall apply.

Fabricated HLMR bearings and other materials complying with the requirements of this item, furnished and accepted, will be paid for at the contract unit price each for
FURNISHING HIGH LOAD MULTI-ROTATIONAL BEARINGS, POT, FIXED; FURNISHING HIGH LOAD MULTI-ROTATIONAL BEARINGS, POT, GUIDED EXPANSION; FURNISHING HIGH LOAD MULTI-ROTATIONAL BEARINGS, POT, NON-GUIDED EXPANSION; FURNISHING HIGH LOAD MULTI-ROTATIONAL BEARINGS, DISC, FIXED; FURNISHING HIGH LOAD MULTI-ROTATIONAL BEARINGS, DISC, GUIDED EXPANSION; or FURNISHING HIGH LOAD MULTI-ROTATIONAL BEARINGS, DISC, NON-GUIDED EXPANSION of the load capacity specified.

Storage and care of fabricated HLMR bearings and other materials complying with the requirements of this item by the Fabrication Contractor beyond the specified storage period, will be paid for at the contract unit price per calendar day for STORAGE OF HIGH LOAD MULTI-ROTATIONAL BEARINGS if a pay item is provided for in the contract, or will be paid for according to Article 109.04 if a pay item is not provided in the contract.

HLMR bearings and other materials fabricated under this item erected according to the requirements of the specifications, and accepted, will be paid for at the contract unit price each for ERECTING HIGH LOAD MULTI-ROTATIONAL BEARINGS, POT, FIXED; ERECTING HIGH

LOAD MULTI-ROTATIONAL BEARINGS, POT, GUIDED EXPANSION; ERECTING HIGH LOAD MULTI-ROTATIONAL BEARINGS, POT, NON-GUIDED EXPANSION; ERECTING HIGH LOAD MULTI-ROTATIONAL BEARINGS, DISC, FIXED; ERECTING HIGH LOAD MULTI-ROTATIONAL BEARINGS, DISC, GUIDED EXPANSION; or ERECTING HIGH LOAD MULTI-ROTATIONAL BEARINGS, DISC, NON-GUIDED EXPANSION of the load capacity specified.

BRIDGE DECK LATEX CONCRETE OVERLAY
Effective: May 15, 1995
Revised: April 30, 2021

This work shall consist of the preparation of the existing concrete bridge deck and the construction of a latex overlay to the specified thickness.

Materials. Materials shall meet the following Articles of Section 1000:

Item	Section
(a) Latex/Portland Cement Concrete (Note 1) (Note 2)	1020
(b) Packaged Rapid Hardening Mortar or Concrete	1018
(c) Concrete Curing Materials	1022.02
(d) Synthetic Fibers	(Note 3)

Note 1: The latex admixture shall be a uniform, homogeneous, non-toxic, film-forming, polymeric emulsion in water to which all stabilizers have been added at the point of manufacture. The latex admixture shall not contain any chlorides and shall contain 46 to 49 percent solids.

The Contractor shall submit a manufacturer's certification that the latex emulsion meets the requirements of FHWA Research Report RD-78-35, Chapter VI. The certificate shall include the date of manufacture of the latex admixture, batch or lot number, quantity represented, manufacturer's name, and the location of the manufacturing plant. The latex emulsion shall be sampled and tested in accordance with RD-78-35, Chapter VII, Certification Program.

The latex admixture shall be packaged and stored in containers and storage facilities which will protect the material from freezing and from temperatures above 85°F (30°C). Additionally, the material shall not be stored in direct sunlight and shall be shaded when stored outside of buildings during moderate temperatures.

Note 2: Cement shall be Type I portland cement. Fine aggregate shall be natural sand and the coarse aggregate shall be crushed stone or crushed gravel. The gradation of the coarse aggregates shall be CA 13, CA 14 or CA 16.

Note 3: Synthetic fibers, when required, shall be macro-size and shall be Type II or III according to ASTM C 1116.

Macro fibers shall have a length between 0.75 and 1.75 inches (19 and 45 mm) and aspect ratio (length divided by the equivalent diameter for the fiber) between 70 and 100.

The fibers proposed for use along with the method of incorporating the fibers into the mix shall be submitted to the Department for approval prior to use.

When synthetic fibers are required, the dosage rate shall be per the manufacturer's recommendation but in no case less than 2 lb./cu yd (1.2 kg/cu m). Dosage rates greater than 3.0 lb/cu yd (1.8 kg/cu m) shall be evaluated by field demonstration for fiber clumping, ease of placement, and ease of finishing. The field demonstration shall consist of a minimum 2 cu yd (1.5 cu m) trial batch placed in a 12 ft. x 12 ft. (3.6 m x 3.6 m) slab or other configuration approved by the Engineer. The trial batch will be verified by the Engineer according to the "Portland Cement Concrete Level III Technician" course material. Based on the trial batch, the Department has the option to reduce the dosage rate of fibers.

Mixture Design. The latex concrete shall contain the following approximate units of measure or volumes per cubic yard (cubic meter):

Type I Portland Cement	658 lb. (390 kg)
Latex Admixture	24.5 gal (121.3 L)
Coarse Aggregate	42 to 50 percent by weight (mass) of total aggregate
Water (including free moisture on the fine and coarse aggregates)	157 lb. (93.1 kg) maximum

No air entraining admixtures shall be added to the mix.

This mix design is based on a specific gravity of 2.65 for both the fine and the coarse aggregates. The mix will be adjusted by the Engineer to compensate for aggregate specific gravity and moisture.

The latex concrete shall meet the following requirements:

Slump shall be according to Article 1020.07 and 1020.12: 3 to 7 in. (75 to 175 mm). Maximum slump may be exceeded if there are no visible signs of segregation.

Air Content shall be according to Article 1020.08 and 1020.12: 7 percent maximum

Water-cement ratio (considering all the nonsolids in the latex admixture as part of the total water)	0.30 to 0.40
Compressive Strength (14 days)	4000 psi (27,500 kPa) minimum
Flexural Strength (14 days)	675 psi (4,650 kPa)

Equipment: The equipment used shall be subject to the approval of the Engineer and shall meet the following requirements:

(a) Surface Preparation Equipment. Surface preparation equipment shall be according to the applicable portions of Section 1100 and the following:

(1) Sawing Equipment. Sawing equipment shall be a concrete saw capable of sawing concrete to the specified depth.

(2) Mechanical Blast Cleaning Equipment. Mechanical blast cleaning may be performed by high-pressure waterblasting or shotblasting. Mechanical blast cleaning equipment shall be capable of removing weak concrete at the surface, including the microfractured concrete surface layer remaining as a result of mechanical scarification, and shall have oil traps.

Mechanical high-pressure waterblasting equipment shall be mounted on a wheeled carriage and shall include multiple nozzles mounted on a rotating assembly, and shall be operated with a 7000 psi (48 MPa) minimum water pressure. The distance between the nozzles and the deck surface shall be kept constant and the wheels shall maintain contact with the deck surface during operation.

(3) Hand-Held Blast Cleaning Equipment. Blast cleaning using hand-held equipment may be performed by high-pressure waterblasting or abrasive blasting. Hand-held blast cleaning equipment shall have oil traps.

Hand-held high-pressure waterblasting equipment that is used in areas inaccessible to mechanical blast cleaning equipment shall have a minimum water pressure of 7000 psi (48 MPa).

(4) Mechanical Scarifying Equipment. Scarifying equipment shall meet the requirements of Article 1101.16 and shall be capable of uniformly scarifying or removing the old concrete surface and new patches to the depths required in a satisfactory manner. The minimum width of the equipment permitted is 3 feet. Areas that are inaccessible to a self-propelled milling machine shall be uniformly scarified by other types of removal devices to the satisfaction of the Engineer.

(5) Hydro-Scarification Equipment. The hydro-scarification equipment shall consist of filtering and pumping units operating with a computerized, self-propelled robotic machine with gauges and settings that can be easily verified. The equipment shall use water according to Section 1002. The equipment shall be capable of removing in a single pass, sound concrete to the specified depth, and operating at a 16,000 psi (110 MPa) minimum water pressure with a 55 gal/min (208 L/min) minimum water flow rate.

(6) Vacuum Cleanup Equipment. The equipment shall be equipped with fugitive dust control devices capable of removing wet debris and water all in the same pass.

Vacuum equipment shall also be capable of washing the deck with pressurized water prior to the vacuum operation to dislodge all debris and slurry from the deck surface.

(7) Power-Driven Hand Tools. Power-driven hand tools will be permitted including jackhammers lighter than the nominal 45 lb. (20 kg) class. Jackhammers or chipping hammers shall not be operated at an angle in excess of 45 degrees measured from the surface of the slab.

(b) Pull-off Test Equipment. Equipment used to perform pull-off testing shall be either approved by the Engineer, or obtained from one of the following approved sources:

James Equipment
007 Bond Tester
800-426-6500

Germann Instruments, Inc.
BOND-TEST Pull-off System
847-329-9999

SDS Company
DYNA Pull-off Tester
805-238-3229

Pull-off test equipment shall include all miscellaneous equipment and materials to perform the test and clean the equipment, as indicated in the Illinois Test procedure 304 and 305 “Pull-off Test (Surface or Overlay Method)”. Prior to the start of testing, the Contractor shall submit to the Engineer a technical data sheet and material safety data sheet for the epoxy used to perform the testing. For solvents used to clean the equipment, a material safety data sheet shall be submitted.

(c) Concrete Equipment: A mobile Portland cement concrete plant shall be used for Latex Concrete and shall be according to Articles 1020.12, 1103.04 and the following:

(1) The device for proportioning water shall be accurate within one percent.

(2) The mixer shall be a self-contained, mobile, continuous mixer used in conjunction with volumetric proportioning.

(3) The mixer shall be calibrated prior to every placement of material or as directed by the Engineer.

(d) Finishing Equipment. Finishing equipment shall be according to Article 503.03.

(e) Mechanical Fogging Equipment. Mechanical fogging equipment shall be according to 503.03.

Construction Requirements: Sidewalks, curbs, drains, reinforcement and/or existing transverse and longitudinal joints which are to remain in place shall be protected from damage during scarification and cleaning operations. All damage caused by the Contractor shall be corrected, at the Contractor’s expense, to the satisfaction of the Engineer.

The Contractor shall control the runoff water generated by the various construction activities in such a manner as to minimize, to the maximum extent practicable, the discharge of untreated effluent into adjacent waters, and shall properly dispose of the solids generated according to Article 202.03. The Contractor shall submit a water management plan to the Engineer specifying the control measures to be used. The control measures shall be in place prior to the start of runoff water generating activities. Runoff water shall not be allowed to constitute a hazard to adjacent or underlying roadways, waterways, drainage areas or railroads nor be allowed to erode existing slopes.

(a) Deck Preparation:

(1) Bridge Deck Scarification. The scarification work shall consist of removing the designated concrete deck surface using mechanical and hydro-scarifying equipment as specified. The areas designated shall be scarified to the depth specified on the plans. The depth specified shall be measured from the existing concrete deck surface to the grout line between aggregates remaining after scarification. In areas of the deck not accessible to the scarifying equipment, power-driven hand tools will be permitted. Power driven hand tools shall be used for removal around areas to remain in place.

The Contractor shall use mechanical scarification equipment to remove an initial ¼" minimum depth of concrete, creating a uniform roughened concrete deck surface to facilitate hydro-scarification. At a minimum, the last 1/2 in. (13 mm) of removal shall be accomplished with hydro-scarification equipment. If the Contractor's use of mechanical scarifying equipment results in exposing, snagging, or dislodging the top mat of reinforcing steel, the mechanical scarifying depth shall be reduced as necessary immediately. If the exposing, snagging, or dislodging the top mat of reinforcing steel cannot be avoided, the mechanical scarifying shall be stopped immediately and the remaining removal shall be accomplished using the hydro-scarification equipment. All damage to the existing reinforcement resulting from the Contractor's operation shall be repaired or replaced at the Contractor's expense as directed by the Engineer. Replacement shall include the removal of any additional concrete required to position or splice the new reinforcing steel. Undercutting of exposed reinforcement bars shall only be as required to replace or repair damaged reinforcement. Repairs to existing reinforcement shall be according to the Special Provision for "Deck Slab Repair".

Just prior to performing hydro-scarification, the deck shall be sounded, with unsound areas marked on the deck by the Engineer. A trial section, in an area of sound concrete, on the existing deck surface will be designated by the Engineer to calibrate the equipment settings to remove sound concrete to the required depth, in a single pass, and provide a highly roughened bondable surface. The trial section shall consist of approximately 30 sq. ft. (3 sq. m). After calibration in an area of sound concrete, the equipment shall be moved to a second trial section, as designated by the Engineer, in an area containing unsound concrete to verify the calibrated settings

are sufficient to remove the unsound concrete. If the calibrated settings are insufficient to remove the unsound concrete, the equipment may be moved back to an area of sound concrete and the calibration settings verified. If the equipment cannot be calibrated to produce the required results in an area of sound concrete, it shall be removed and additional hydro-scarification equipment capable of producing the required results shall be supplied by the Contractor.

After the equipment settings are established, they shall be supplied to the Engineer. These settings include the following:

a) Water pressure

b) Water flow rate

c) Nozzle type and size

d) Nozzle travel speed

e) Machine staging control (step/advance rate)

Hydro-scarification may begin after the calibration settings have been approved by the Engineer.
The removal depth shall be verified by the Engineer, as necessary. If sound concrete is being removed below the desired depth, the equipment shall be recalibrated.

After hydro-scarification the deck shall be thoroughly vacuum cleaned in a timely manner before the water and debris are allowed to dry and re-solidify to the deck. The uses of alternative cleaning and debris removal methods to minimize driving heavy vacuum equipment over exposed deck reinforcement may be used subject to the approval of the Engineer.

(2) Deck Patching. After bridge deck scarification and cleaning, the Engineer will sound the scarified deck and survey the existing reinforcement condition. All remaining unsound concrete and unacceptably corroded reinforcement bars will be marked for additional removal and/or repairs as applicable. All designated repairs and reinforcement treatment shall be completed according to the Special Provision for "Deck Slab Repair" except as noted below:

a) Partial depth removal will not be measured for payment. Any deck survey information implying partial depth repairs is for information only. Partial depth removal shall be accomplished concurrent with the hydro-scarification operation. After the hydro scarification has been performed to the satisfaction of the Engineer, areas requiring additional partial depth removal of unsound concrete will be paid for according to Article 109.04.

b) In areas where unsound concrete extends below the specified removal depth and hydro-scarification completely removes unsound concrete, a full-depth repair is only required when the bottom mat of reinforcement is exposed.

c) All full-depth patches shall be struck off to the scarified deck surface and then roughened with a suitable stiff bristled broom or wire brush to provide a rough texture designed to promote bonding of the overlay. Hand finishing of the patch surface shall be kept to a minimum to prevent overworking of the surface.

d) All full-depth repairs shall be completed prior to final surface preparation.

e) Any removal required or made below the specified depth for scarification of the bridge deck, which does not result in full-depth repair, shall be filled with the overlay material at the time of the overlay placement.

f) Epoxy coating, on existing reinforcement bars, damaged during hydro-scarification shall not be repaired.

g) Undercutting of exposed reinforcement bars shall only be as required to replace or repair damaged or corroded reinforcement.

(3) Final Surface Preparation. Any areas determined by the Engineer to be inaccessible to scarifying equipment shall be thoroughly blast cleaned with hand-held equipment.

If spoils from the scarification operation are allowed to dry and re-solidify on the deck surface, the deck surface shall be cleaned with mechanical blast cleaning equipment.

Final surface preparation shall also include the cleaning of all dust, debris, concrete fines and other foreign substances from the deck surface including vertical faces of curbs, previously placed adjacent overlays, barrier walls up to a height of 1 in. (25 mm) above the overlay, depressions, and beneath reinforcement bars. Hand-held high-pressure waterblasting equipment shall be used for this operation.

The Department may require surface pull-off testing of areas inaccessible to scarifying equipment. Testing shall be in according to the Illinois Test Procedure 304 “Pull-off Test (Surface Method)”. The Contractor shall provide the test equipment. The Engineer shall determine each test location, and each individual test shall have a minimum strength of 175 psi (1,207 kPa). In the case of a failing test, the Contractor shall adjust the blast cleaning method and re-clean the area. Testing will be repeated until satisfactory results are attained.

Exposed reinforcement bars shall be free of dirt, detrimental scale, paint, oil, and other foreign substances which may reduce bond with the concrete. A tight non-scaling coating of rust is not considered objectionable. Loose, scaling rust shall be removed by rubbing with burlap, wire brushing, blast cleaning or other methods

approved by the Engineer. All loose reinforcement bars, as determined by the Engineer, shall be retied at the Contractor's expense.

All dust, concrete fines, debris, including water, resulting from the surface preparation shall be confined and shall be immediately and thoroughly removed from all areas of accumulation. If concrete placement does not follow immediately after the final cleaning, the area shall be carefully protected with well-anchored white polyethylene sheeting.

(b) Pre-placement Procedure. Prior to placing the overlay, the Engineer will inspect the deck surface. All contaminated areas shall be blast cleaned again at the Contractor's expense.

Before placing the overlay, the finishing machine shall be operated over the full length of bridge segment to be overlaid to check support rails for deflection and confirm the minimum overlay thickness. All necessary adjustments shall be made and another check performed, unless otherwise directed by the Engineer.

(c) Placement Procedure: Concrete placement shall be according to Article 503.07 and the following:

(1) Bonding Method. The deck shall be cleaned to the satisfaction of the Engineer and shall be thoroughly wetted and maintained in a dampened condition with water for at least 12 hours before placement of the overlay. Any excess water shall be removed by compressed air or by vacuuming prior to the beginning of overlay placement. Water shall not be applied to the deck surface within one hour before or at any time during placement of the overlay.

(2) Overlay Placement. Placement of the concrete shall be according to Article 503.16.

Internal vibration will be required along edges, adjacent to bulkheads, and where the overlay thickness exceeds 3 in. (75 mm). Internal vibration along the longitudinal edges of a pour will be required with a minimum of 2 hand-held vibrators, one on each edge of the pour. Hand finishing will be required along the edges of the pour and shall be done from sidewalks, curbs or work bridges.

A construction dam or bulkhead shall be installed in case of a delay of 30 minutes or more in the concrete placement operation.

All construction joints shall be formed. When required by the Engineer the previously placed overlay shall be sawed full-depth to a straight and vertical edge before fresh concrete is placed. The Engineer will determine the extent of the removal. When longitudinal joints are not shown on the plans, the locations shall be subject to approval by the Engineer and shall not be located in the wheel paths.

The Contractor shall stencil the date of construction (month and year) and the letters LX, for LateX, or LXF, for LateX with Fibers, into the overlay before it takes its final set. The stencil shall be located in a conspicuous location, as determined by the Engineer, for each stage of construction. This location shall be outside of the grooving where possible and within 3 ft. (1 m) of an abutment joint. The characters shall be 3 to 4 in. (75 mm to 100 mm) in height, 1/4 in. (5 mm) in depth and face the centerline of the roadway.

(3) Limitations of Operations:

(a) Weather Limitations. Temperature control for concrete placement shall be according to 1020.14(b). The concrete protection from low air temperatures during the curing period shall be according to Article 1020.13(d). Concrete shall not be placed when rain is expected during the working period. If night placement is required, illumination and placement procedures will be subject to the approval of the Engineer. No additional compensation will be allowed if night work is required.

(b) Other Limitations. Concrete delivery vehicles driven on the structure shall be limited to a maximum load of 6 cu. yd. (4.6 cu. m).

Mobile concrete mixers, truck mixers, concrete pumps, or other heavy equipment will not be permitted on any portion of the deck where the top reinforcing mat has been exposed. Conveyors, buggy ramps and pump piping shall be installed in a way that will not displace undercut reinforcement bars. Air compressors may be operated on the deck only if located directly over a pier and supported off undercut reinforcement bars. Compressors will not be allowed to travel over undercut reinforcement bars.

Concrete removal may proceed during final cleaning and concrete placement on adjacent portions of the deck, provided the removal does not interfere in any way with the cleaning or placement operations.

Water or contaminants from the hydro-scarification shall not be permitted in areas where the new overlay has been placed until the overlay has cured a minimum of 24 hours.

No concrete shall be removed within 6 ft. (1.8 m) of a newly-placed overlay until the concrete has obtained a minimum compressive strength of 3000 psi (20,700 kPa) or flexural strength of 600 psi (4,150 kPa).

(4) Curing.

Curing. The minimum curing time shall be 48 hours of wet cure followed by 48 hours of dry cure. The wet cure shall be according to Article 1020.13(a)(3) (Wetted Burlap Method) or Article 1020.13(a)(5) (Wetted Cotton Mat Method). When the cotton

mats have been pre-dampened, excess water shall not be allowed to drip from the cotton mats onto the overlay during placement of the mats. After the wet cure is completed all layers of covering materials shall be removed to allow for the dry cure.

If the ambient temperature falls below 45°F (10°C) during either the wet or dry curing periods, the time below 45°F (10°C) will not be included in the 96 hour curing period. If there is sufficient rain to wet the surface of the overlay for more than one hour of the dry cure period, the wet time will not be included in the 48 hour dry cure period.

(5) Opening to Traffic.

No traffic or construction equipment will be permitted on the overlay until after the specified cure period and the concrete has obtained a minimum compressive strength of 4000 psi (27,500 kPa) or flexural strength of 675 psi (4,650 kPa) unless permitted by the Engineer.

(6) Overlay Testing. The Engineer reserves the right to conduct pull-off tests on the overlay to determine if any areas are not bonded to the underlying concrete, and at a time determined by the Engineer. The overlay will be tested according to the Illinois Test procedure 305 “Pull-off Test (Overlay Method)”, and the Contractor shall provide the test equipment. Each individual test shall have a minimum strength of 150 psi (1,034 kPa). Unacceptable test results will require removal and replacement of the overlay at the Contractor’s expense, and the locations will be determined by the Engineer. When removing portions of an overlay, the saw cut shall be a minimum depth of 1 in. (25 mm).

If the overlay is to remain in place, all core holes due to testing shall be filled with a rapid set mortar or concrete. Only enough water to permit placement and consolidation by rodding shall be used, and the material shall be struck-off flush with the adjacent material.

For a rapid set mortar mixture, one part packaged rapid set cement shall be combined with two parts fine aggregate, by volume; or a packaged rapid set mortar shall be used. For a rapid set concrete mixture, a packaged rapid set mortar shall be combined with coarse aggregate according to the manufacturer’s instructions; or a packaged rapid set concrete shall be used. Mixing of a rapid set mortar or concrete shall be according to the manufacturer’s instructions.

Method of Measurement. The area of bridge deck scarification will be measured for payment in square yards (square meters). No additional payment will be made for multiple passes of the equipment.

The concrete overlay will be measured for payment in square yards (square meters).

Additional concrete placed with the overlay, required to fill all depressions below the specified thickness will be measured for payment in cubic yards (cubic meters). The volume will be

determined by subtracting the theoretical volume of the overlay from the ticketed volume of overlay delivered minus the volume estimated by the Engineer left in the last truck at the end of the overlay placement. The theoretical cubic yard (cubic meter) quantity for the overlay will be determined by multiplying the plan surface area of the overlay times the specified thickness of the overlay.

Basis of Payment. Bridge deck scarification will be paid for at the contract unit price per square yard (square meter) for BRIDGE DECK SCARIFICATION of the depth specified.

Latex concrete overlay will be paid for at the contract unit price per square yard (square meter) for BRIDGE DECK LATEX CONCRETE OVERLAY, of the thickness specified. The additional volume of overlay required to fill all depressions below the specified thickness and/or for grade adjustments will be paid for at the Contractor's actual material cost for the latex concrete per cubic yard (cubic meter) times an adjustment factor. For volumes 15 percent or less over the theoretical volume of the overlay the adjustment factor will be 1.15. For volumes greater than 15 percent the adjustment factor will be 1.25 for that volume over 15 percent of the theoretical volume of the overlay.
Areas requiring additional partial depth removal of unsound concrete after hydro-scarification will be paid for according to Article 109.04.

When the Engineer conducts pull-off tests on the existing surface or overlay and they are acceptable, Contractor expenses incurred due to testing and for filling core holes will be paid according to Article 109.04. Unacceptable pull-off tests will be at the Contractor's expense.

STRUCTURAL ASSESSMENT REPORTS FOR CONTRACTOR'S MEANS AND METHODS
Effective: March 6, 2009
Revised October 5, 2015

Description. This item shall consist of preparing and submitting, to the Engineer for approval, Structural Assessment Reports (SARs) for proposed work on structure(s) or portions thereof. Unless noted otherwise, a SAR shall be required when the Contractor's means and methods apply loads to the structure or change its structural behavior. A SAR shall be submitted and approved prior to beginning the work covered by that SAR. Separate portions of the work may be covered by separate SARs which may be submitted at different times or as dictated by the Contractor's schedule.

Existing Conditions. An Existing Structure Information Package (ESIP) will be provided by the Department to the Contractor upon request. This package will typically include existing or "As-Built" plans, and the latest National Bridge Inspection Standards (NBIS) inspection report. The availability of structural information from the Department is solely for the convenience and information of the Contractor and shall not relieve the Contractor of the duty to make, and the risk of making, examinations and investigations as required to assess conditions affecting the work. Any data furnished in the ESIP is for information only and does not constitute a part of the Contract. The Department makes no representation or warranty, express or implied, as to the information conveyed or as to any interpretations made from the data.

Removal SARs. A SAR for removal of existing structures, or portions thereof, shall demonstrate that the Contractor's proposed means and methods to accomplish the work do not compromise the structural adequacy of the bridge, or portions thereof that are to remain in service, at any time during the work activities being performed. Each phase of the operation shall be accounted for, as well as the existing condition of the structure.

Construction SARs. A SAR for new construction or for construction utilizing existing components shall demonstrate that the Contractor's proposed means and methods to accomplish the work do not compromise the structural adequacy of the bridge or portions thereof at any time during the work activities being performed. For construction activities applying less than 10 tons (9 metric tons) of total combined weight of equipment and stockpiled materials on the structure at any one time, a SAR submittal shall not be required provided the Contractor submits written verification to the Engineer stating the applied loads do not exceed this threshold. The verification shall be submitted prior to the start of the activity. This SAR exemption shall not relieve the Contractor from responsibility for the structure. A SAR shall be submitted in all cases where the existing structure is posted for less than legal loads or the Contract plans indicate a live load restriction is in place.

Requirements

a) General. All work specified shall be performed according to the Contract plans, Special Provisions and/or Standard Specifications governing that work.

Submittals for falsework and forming for concrete construction shall be according to Articles 503.05 and 503.06 and does not require a SAR. Moving construction equipment across a structure, or portions thereof, open to traffic shall be addressed according to Article 107.16 and does not require a SAR. Operating equipment on an in-service structure and/or using a portion of an in-service structure as a work platform shall require a SAR and Article 107.16 shall not apply.

The Contractor may move vehicles across the existing bridge without a SAR after closure and prior to removal of any portion of the structure provided:

- The vehicles satisfy the requirements of Section 15-111 of the Illinois Vehicle Code (described in the IDOT document "Understanding the Illinois Size & Weight Laws") or of the Federal Highway Administration document "Bridge Formula Weights" (available at: http://www.ops.fhwa.dot.gov/freight/publications/brdg_frm_wghts/index.htm)
- The Contractor submits written verification to the Engineer stating the vehicles meet these requirements. The verification shall be submitted prior to allowing the vehicles on the structure.

This SAR exemption shall not relieve the Contractor from responsibility for the structure. This SAR exemption shall not be allowed where the existing structure is posted for less than legal loads or the Contract plans indicate a live load restriction is in place. No stockpiling of material is allowed under this exemption.

All SARs shall detail the procedures and sequencing necessary to complete the work in a safe and controlled manner. When appropriate, supporting design calculations shall be provided verifying the following:

- The effects of the applied loads do not exceed the capacity at Operating level for any portions of the structure being utilized in the demolition of the structure provided those portions are not to be reused.
- The effects of the applied loads do not exceed the capacity at Inventory level for new construction or for portions of the existing structure that are to be reused.
- The condition of the structure and/or members has been considered.

See AASHTO Manual for Bridge Evaluation for further information on determining the available capacities at the Operating and Inventory levels.

b) Confidential Documents. Due to the sensitivity of the inspection reports and bridge condition reports to bridge security, the following confidentiality statement applies to these reports:

"Reports used by the Contractor and the contents thereof are the property of the Department, and are subject to the control of the Department in accordance with State and Federal law. The distribution, dissemination, disclosure, duplication or release of these reports or the content thereof in any manner, form or format without the express permission of the keeper of this record is prohibited. The owner is the official keeper of these records, except for state owned bridges, where the official keeper of these records is the Regional Engineer."

c) Submittals. The Contractor shall be pre-approved to prepare SAR(s) or shall retain the services of a pre-qualified engineering firm to provide these services. Pre-approval of the Contractor will be determined by the Illinois Department of Transportation and will allow SAR(s) preparation by the Contractor unless otherwise noted on the plans. For engineering firms, pre-qualification shall be according to the Department in the category of "Highway Bridges-Typical" unless otherwise noted on the plans. Firms involved in any part of the project (plan development or project management) will not be eligible to provide these services. Evidence of pre-approval/pre-qualification shall be submitted with all SAR(s). The SAR(s) shall be prepared and sealed by an Illinois Licensed Structural Engineer. The Contractor shall submit SAR(s), complete with working drawings and supporting design calculations, to the Engineer for approval, at least 30 calendar days prior to start of that portion of the work.

At a minimum a Structural Assessment Report shall include the following:

1. A plan outlining the procedures and sequence for the work, including staging when applicable.
2. A demolition plan (when removal is included as an item of work in the contract) including details of the proposed methods of removal.
3. A beam erection plan (when beam erection is included as an item of work in the contract) including details of the proposed methods of erection.
4. Pertinent specifications for equipment used during the work activity.
5. The allowable positions for that equipment during the work activity.
6. The allowable positions and magnitudes of stockpiled materials and/or spoils, if planned to be located on the structure.
7. Design and details for temporary shoring and/or bracing, if required by the Contractor's means and methods.

Approval or acceptance of a Structural Assessment Report shall not relieve the Contractor of any responsibility for the successful completion of the work.

Revisions to the Contractor's means and methods resulting in no increased load effects to the structure, as determined by the Contractor's Structural Engineer, shall not require a SAR resubmittal. However, the Contractor's Structural Engineer shall submit to the Engineer written verification that there is no increased load effect. The written verification shall specify the revisions and shall be submitted prior to the start of the revised activities.

The Contractor shall be responsible for following the approved SAR related to the work involved.

Method of Measurement. Structural Assessment Reports will not be measured for payment.

Basis of payment. Structural Assessment Reports will not be paid for separately but shall be considered as included in the contract unit price(s) for the work item(s) specified.

BRIDGE DECK CONSTRUCTION
Effective: October 22, 2013
Revised: December 21, 2016

When Diamond Grinding of Bridge Sections is specified, hand finishing of the deck surface shall be limited to areas not finished by the finishing machine and to address surface corrections according to Article 503.16(a)(2). Hand finishing shall be limited as previously stated solely for the purpose of facilitating a more timely application of the curing protection. In addition the requirements of 503.16(a)(3)a. and 503.16(a)(4) will be waived.

Revise the Second Paragraph of Article 503.06(b) to read as follows.

"When the Contractor uses cantilever forming brackets on exterior beams or girders, additional requirements shall be as follows."

Revise Article 503.06(b)(1) to read as follows.

"(1) Bracket Placement. The spacing of brackets shall be per the manufacturer's published design specifications for the size of the overhang and the construction loads anticipated. The resulting force of the leg brace of the cantilever bracket shall bear on the web within 6 inches (150 mm) of the bottom flange of the beam or girder."

Revise Article 503.06(b)(2) to read as follows.

"(2) Beam Ties. The top flange of exterior steel beams or girders supporting the cantilever forming brackets shall be tied to the bottom flange of the next interior beam. The top flange of exterior concrete beams supporting the cantilever forming brackets shall be tied to the top flange of the next interior beam. The ties shall be spaced at 4 ft (1.2 m) centers. Permanent cross frames on steel girders may be considered a tie. Ties shall be a minimum of 1/2 inch (13 mm) diameter threaded rod with an adjusting mechanism for drawing the tie taut. The ties shall utilize hanger brackets or clips which hook onto the flange of steel beams. No welding will be permitted to the structural steel or stud shear connectors, or to reinforcement bars of concrete beams, for the installation of the tie bar system. After installation of the ties and blocking, the tie shall be drawn taut until the tie does not vary from a straight line from beam to beam. The tie system shall be approved by the Engineer."

Revise Article 503.06(b)(3) to read as follows.

"(3) Beam Blocks. Suitable beam blocks of 4 in x 4 in (100 x 100 mm) timbers or metal structural shapes of equivalent strength or better, acceptable to the Engineer, shall be wedged between the webs of the two beams tied together, within 6 inches (150 mm) of the bottom flange at each location where they are tied. When it is not feasible to have

the resulting force from the leg brace of the cantilever brackets transmitted to the web within 6 inches (150 mm) of the bottom flange, then additional blocking shall be placed at each bracket to transmit the resulting force to within 6 inches (150 mm) of the bottom flange of the next interior beam or girder."

Delete the last paragraph of Article 503.06(b).

DRILLED SHAFTS
Effective: October 5, 2015
Revised: October 4, 2016

Revise Section 516 of the Standard Specifications to read:

"SECTION 516. DRILLED SHAFTS

516.01 Description. This work shall consist of constructing drilled shaft foundations.

516.02 Materials. Materials shall be according to the following.

Item	Article/Section
(a) Portland Cement Concrete (Note 1)	1020
(b) Reinforcement Bars	1006.10
(c) Grout (Note 2)	1024.01
(d) Permanent Steel Casing	1006.05(d)
(e) Slurry (Note 3)	

Note 1. When the soil contains sulfate contaminates, ASTM C 1580 testing will be performed to assess the severity of sulfate exposure to the concrete. If the sulfate contaminate is >0.10 to < 0.20 percent by mass, a Type II (MH) cement shall be used. If the sulfate contaminate is >0.20 to < 2.0 percent by mass, a Type V cement shall be used. If the sulfate contaminate is ≥ 2.0 percent by mass, refer to ACI 201.2R for guidance.

Note 2. The sand-cement grout mix shall be according to Section 1020 and shall be two to five parts sand and one part Type I or II cement. The maximum water cement ratio shall be sufficient to provide a flowable mixture with a typical slump of 10 in. (250 mm).

Note 3. Slurry shall be bentonite, emulsified polymer, or dry polymer, and shall be approved by the Engineer.

516.03 Equipment. Equipment shall be according to the following.

Item	Article/Section
(a) Concrete Equipment	1020.03
(b) Drilling Equipment (Note 1)	
(c) Hand Vibrator	1103.17(a)
(d) Underwater Concrete Placement Equipment	1103.18

Note 1. The drilling equipment shall have adequate capacity, including power, torque and down thrust, to create a shaft excavation of the maximum diameter specified to a depth of 20 percent beyond the depths shown on the plans.

516.04 Submittals. The following information shall be submitted on form BBS 133.

(a) Qualifications. At the time of the preconstruction conference, the Contractor shall provide the following documentation.

(1) References. A list containing at least three projects completed within the three years prior to this project's bid date which the Contractor performing this work has installed drilled shafts of similar diameter, length, and site conditions to those shown in the plans. The list of projects shall contain names and phone numbers of owner's representatives who can verify the Contractor's participation on those projects.

(2) Experience. Name and experience record of the drilled shaft supervisor, responsible for all facets of the shaft installation, and the drill operator(s) who will be assigned to this project. The supervisor and operator(s) shall each have a minimum of three years experience in the construction of drilled shafts.

(b) Installation Procedure. A detailed installation procedure shall be submitted to the Engineer for acceptance at least 28 days prior to drilled shaft construction and shall address each of the following items unless otherwise directed by the Engineer in writing.

(1) Equipment List. List of proposed equipment to be used including cranes, drill rigs, augers, belling tools, casing, vibratory hammers, core barrels, bailing buckets, final cleaning equipment, slurry equipment, tremies, or concrete pumps, etc.

(2) General Sequence. Details of the overall construction operation sequence, equipment access, and the sequence of individual shaft construction within each substructure bent or footing group. The submittal shall address the Contractor's proposed time delay and/or the minimum concrete strength necessary before initiating a shaft excavation adjacent to a recently installed drilled shaft.

(3) Shaft Excavation. A site specific step by step description of how the Contractor anticipates the shaft excavation to be advanced based on their evaluation of the subsurface data and conditions expected to be encountered. This sequence shall note the method of casing advancement, anticipated casing lengths, tip elevations and diameters, the excavation tools used and drilled diameters created. The Contractor shall indicate whether wet or dry drilling conditions are expected and if groundwater will be sealed from the excavation.

(4) Slurry. When the use of slurry is proposed, details on the types of additives to be used and their manufacturers shall be provided. In addition, details covering the measurement and control of the hardness of the mixing water, agitation, circulation, de-sanding, sampling, testing, and chemical properties of the slurry shall be submitted.

(5) Shaft Cleaning. Method(s) and sequence proposed for the shaft cleaning operation.

(6) Reinforcement Cage and Permanent Casing. Details of reinforcement placement including rolling spacers to be used and method to maintain proper elevation and location of the reinforcement cage within the shaft excavation during concrete placement. The method(s) of adjusting the reinforcement cage length and permanent casing if rock is encountered at an elevation other than as shown on the plans. As an option, the Contractor may perform soil borings and rock cores at the drilled shaft locations to determine the required reinforcement cage and permanent casing lengths.

(7) Concrete Placement. Details of concrete placement including proposed operational procedures for free fall, tremie or pumping methods. The sequence and method of casing removal shall also be stated along with the top of pour elevation, and method of forming through water above streambed.

(8) Mix Design. The proposed concrete mix design(s).

(9) Disposal Plan. Containment and disposal plan for slurry and displaced water. Containment and disposal plan for contaminated concrete pushed out of the top of the shaft by uncontaminated concrete during concrete placement.

(10) Access and Site Protection Plan. Details of access to the drilled shafts and safety measures proposed. This shall include a list of casing, scaffolding, work platforms, temporary walkways, railings, and other items needed to provide safe access to the drilled shafts. Provisions to protect open excavations during non-working hours shall be included.

The Engineer will evaluate the drilled shaft installation procedure and notify the Contractor of acceptance, need for additional information, or concerns with the installation's effect on the existing or proposed structure(s).

CONSTRUCTION REQUIREMENTS

516.05 General. Excavation for drilled shaft(s) shall not proceed until written authorization is received from the Engineer. The Contractor shall be responsible for verification of the dimensions and alignment of each shaft excavation as directed by the Engineer.

Unless otherwise approved in the Contractor's installation procedure, no shaft excavation, casing installation, or casing removal with a vibratory hammer shall be made within four shaft diameters center to center of a shaft with concrete that has a compressive strength less than 1500 psi (10,300 kPa). The site-specific soil strengths and installation methods selected will determine the actual required minimum spacing, if any, to address vibration and blow out concerns.

Lost tools shall not remain in the shaft excavation without the approval of the Engineer.

Blasting shall not be used as a method of shaft excavation.

516.06 Shaft Excavation Protection Methods. The construction of drilled shafts may involve the use of one or more of the following methods to support the excavation during the various phases of shaft excavation, cleaning, and concrete placement dependent on the site conditions encountered. Surface water shall not flow uncontrolled into the shaft excavation, however water may be placed into the shaft excavation in order to meet head pressure requirements according to Articles 516.06(c) and 516.13.

The following are general descriptions indicating the conditions when these methods may be used.

(a) Dry Method. The dry construction method shall only be used at sites where the groundwater and soil conditions are suitable to permit the drilling and dewatering of the excavation without causing subsidence of adjacent ground, boiling of the base soils, squeezing, or caving of the shaft side walls. The dry method shall consist of drilling the shaft excavation, removing accumulated water, cleaning the shaft base, and placing the reinforcement cage and concrete in a predominately dry excavation.

(b) Slurry Method. The slurry construction method may be used at sites where dewatering the excavation would cause collapse of the shaft sidewalls or when the volume and head of water flowing into the shaft is likely to contaminate the concrete during placement resulting in a shaft defect. This method uses slurry, or in rare cases water, to maintain stability of the shaft sidewall while advancing the shaft excavation. After the shaft excavation is completed, the slurry level in the shaft shall be kept at an elevation to

maintain stability of the shaft sidewall, maintain stability of the shaft base, and prevent additional groundwater from entering the shaft. The shaft base shall be cleaned, the reinforcement cage shall be set, and the concrete shall be discharged at the bottom of the shaft excavation, displacing the slurry upwards.

(c) Temporary Casing Method. Temporary casing shall be used when either the dry or slurry methods provide inadequate support to prevent sidewall caving or excessive deformation of the shaft excavation. Temporary casing may be used with slurry or be used to reduce the flow of water into the excavation to allow dewatering and concrete placement in a dry shaft excavation. Temporary casing shall not be allowed to remain permanently without the approval of the Engineer.

During removal of the temporary casing, the level of concrete in the casing shall be maintained at a level such that the head pressure inside the casing is a minimum of 1.25 times the head pressure outside the casing, but in no case is less than 5 ft (1.5 m) above the bottom of the casing. Casing removal shall be at a slow, uniform rate with the pull in line with the shaft axis. Excessive rotation of the casing shall be avoided to limit deformation of the reinforcement cage. In addition, the slump requirements during casing removal shall be according to Article 516.12.

When called for on the plans, the Contractor shall install a permanent casing as specified. Permanent casing may be used as a shaft excavation support method or may be installed after shaft excavation is completed using one of the above methods. After construction, if voids are present between the permanent casing and the drilled excavation, the voids shall be filled with grout. Permanent casing shall not remain in place beyond the limits shown on the plans without the specific approval of the Engineer.

When the shaft extends above the streambed through a body of water and permanent casing is not shown, the portion above the streambed shall be formed with removable casings, column forms, or other forming systems as approved by the Engineer. The forming system shall not scar or spall the finished concrete or leave in place any forms or casing within the removable form limits as shown on the plans unless approved as part of the installation procedure. The forming system shall not be removed until the concrete has attained a minimum compressive strength of 2500 psi (17,200 kPa) and cured for a minimum of 72 hours. For shafts extending through water, the concrete shall be protected from water action after placement for a minimum of seven days.

516.07 Slurry. When slurry is used, the Contractor shall provide a technical representative of the slurry additive manufacturer at the site prior to introduction of the slurry into the first shaft where slurry will be used, and during drilling and completion of a minimum of one shaft to adjust the slurry mix to the specific site conditions. During construction, the level of the slurry shall be maintained a minimum of 5 feet (1.5 m) above the height required to prevent

caving of the shaft excavation. In the event of a sudden or significant loss of slurry in the shaft excavation, the construction of that foundation shall be stopped and the shaft excavation backfilled or supported by temporary casing, until a method to stop slurry loss, or an alternate construction procedure, has been approved by the Engineer.

(a) General Properties. The material used to make the slurry shall not be detrimental to the concrete or surrounding ground. Mineral slurries shall have both a mineral grain size that remains in suspension and sufficient viscosity and gel characteristics to transport excavated material to a suitable screening system. Polymer slurries shall have sufficient viscosity and gel characteristics to transport excavated material to suitable screening systems or settling tanks. The percentage and specific gravity of the material used to make the slurry shall be sufficient to maintain the stability of the excavation and to allow proper concrete placement.

If approved by the Engineer, the Contractor may use water and excavated soils as drilling slurry. In this case, the range of acceptable values for density, viscosity and pH, as shown in the following table for bentonite slurry shall be met.

When water is used as the slurry to construct rock sockets in limestone, dolomite, sandstone or other formations that are not erodible, the requirements for slurry testing shall not apply if the entire fluid column is replaced with fresh water after drilling. To do so, fresh water shall be introduced at the top of the shaft excavation and existing water used during drilling shall be pumped out of the shaft excavation from the bottom of the shaft excavation until the entire volume of fluid has been replaced.

(b) Preparation. Prior to introduction into the shaft excavation, the manufactured slurry admixture shall be pre-mixed thoroughly with clean, fresh water and for adequate time in accordance with the slurry admixture manufacturer's recommendations. Slurry tanks of adequate capacity shall be used for slurry mixing, circulation, storage and treatment. No excavated slurry pits will be allowed in lieu of slurry tanks without approval from the Engineer. Adequate desanding equipment shall be provided to control slurry properties during the drilled shaft excavation in accordance with the values provided in Table 1.

(c) Quality Control. Quality control tests shall be performed on the slurry to determine density, viscosity, sand content and pH of freshly mixed slurry, recycled slurry and slurry in the shaft excavation. Tests of slurry samples from within two feet of the bottom and at mid-height of the shaft excavation shall be conducted in each shaft excavation during the excavation process to measure the consistency of the slurry. A minimum of four sets of tests shall be conducted during the first eight hours of slurry use on the project. When a series of four test results do not change more than 1% from the initial test, the testing frequency may be decreased to one set every four hours of slurry use. Reports of all tests, signed by an authorized representative of the Contractor, shall be furnished to the

Engineer upon completion of each drilled shaft. The physical properties of the slurry shall be as shown in Table 1.

The slurry shall be sampled and tested less than 1 hour before concrete placement. Any heavily contaminated slurry that has accumulated at the bottom of the shaft shall be removed. The contractor shall perform final shaft bottom cleaning after suspended solids have settled from the slurry. Concrete shall not be placed if the slurry does not have the required physical properties.

Table 1 – SLURRY PROPERTIES				
	Bentonite	Emulsified Polymer	Dry Polymer	Test Method
Density, lb/cu ft (kg/cu m) (at introduction)	65.2 ± 1.6[1] (1043.5 ± 25.6)	63 (1009.0) max.	63 (1009.0) max.	ASTM D 4380
Density, lb/cu ft (kg/cu m) (prior to concrete placement)	67.0 ± 3.5[1] (1073.0 ± 56.0)	63 (1009.0) max.	63 (1009.0) max.	ASTM D 4380
Viscosity[2], sec/qt (sec/L)	46 ± 14 (48 ± 14)	38 ± 5 (40 ± 5)	65 ± 15 (69 ± 16)	ASTM D 6910
pH	9.0 ± 1.0	9.5 ± 1.5	9.0 ± 2.0	ASTM D 4972
Sand Content, percent by volume (at introduction)	4 max.	1 max.	1 max.	ASTM D 4381
Sand Content, percent by volume (prior to concrete placement)	10 max.	1 max.	1 max.	ASTM D 4381
Contact Time[3], hours	4 max.	72 max.	72 max	

Note 1. When the slurry consists of only water and excavated soils, the density shall not exceed 70 lb/cu ft (1121 kg/cu m).
Note 2. Higher viscosities may be required in loose or gravelly sand deposits.
Note 3. Contact time is the time without agitation and sidewall cleaning.

516.08 Obstructions. An obstruction is an unknown isolated object that causes the shaft excavation method to experience a significant decrease in the actual production rate and requires the Contractor to core, break up, push aside, or use other means to mitigate the obstruction. Subsurface conditions such as boulders, cobbles, or logs and buried infrastructure such as footings, piling, or abandoned utilities, when shown on the plans, shall not constitute an obstruction. When an obstruction is encountered, the Contractor shall notify the Engineer immediately and upon concurrence of the Engineer, the Contractor shall mitigate the obstruction with an approved method.

516.09 Top of Rock. The top of rock will be considered as the point where rock, defined as bedded deposits and conglomerate deposits exhibiting the physical characteristics and difficulty of rock removal as determined by the Engineer, is encountered which cannot be drilled with augers and/or underreaming tools configured to be effective in the soils indicated in the contract documents.

516.10 Design Modifications. If the top of rock elevation differs from that shown on the plans by more than 10 percent of the length of the drilled shaft above the rock, the Engineer shall be contacted to determine if any drilled shaft design changes may be required. In addition, if the type of soil or rock encountered is not similar to that shown in the subsurface exploration data, the Contractor may be required to extend the drilled shaft length(s) beyond those specified in the plans. In either case, the Engineer will determine if revisions are necessary and the extent of the modifications required.

516.11 Excavation Cleaning and Inspection. Materials removed or generated from the shaft excavations shall be disposed of according to Article 202.03.

After excavation, each shaft shall be cleaned. For a drilled shaft terminating in soil, the depth of sediment or debris shall be a maximum of 1 1/2 in. (38 mm). For a drilled shaft terminating in rock, the depth of sediment or debris shall be a maximum of 1/2 in. (13 mm).

A shaft excavation shall be overreamed when, in the opinion of the Engineer, the sidewall has softened, swelled, or has a buildup of slurry cake. Overreaming may also be required to correct a shaft excavation which has been drilled out of tolerance. Overreaming may be accomplished with a grooving tool, overreaming bucket, or other approved equipment. Overreaming thickness shall be a minimum of 1/2 in. (13 mm) and a maximum of 3 in. (75 mm).

516.12 Reinforcement. This work shall be according to Section 508 and the following.

The shaft excavation shall be cleaned and inspected prior to placing the reinforcement cage. The reinforcement cage shall be completely assembled prior to drilling and be ready for adjustment in length as required by the conditions encountered. The reinforcement cage shall be lifted using multiple point sling straps or other approved methods to avoid reinforcement

cage distortion or stress. Cross frame stiffeners may be required for lifting or to keep the reinforcement cage in proper position during lifting and concrete placement.

The Contractor shall attach rolling spacers to keep the reinforcement cage centered within the shaft excavation during concrete placement and to ensure that at no point will the finished shaft have less than the minimum concrete cover(s) shown on the plans. The rolling spacers or other approved non-corrosive spacing devices shall be installed within 2 ft (0.6 m) of both the top and bottom of the drilled shaft and at intervals not exceeding 10 ft (3 m) throughout the length of the shaft to ensure proper reinforcement cage alignment and clearance for the entire shaft. The number of rolling spacers at each level shall be one for each 1.0 ft (300 mm) of shaft diameter, with a minimum of four rolling spacers at each level. For shafts with different shaft diameters throughout the length of the excavation, different sized rolling spacers shall be provided to ensure the reinforcement cage is properly positioned throughout the entire length of the shaft.

When a specific concrete cover between the base of the drilled shaft and the reinforcement cage is shown on the plans, the bottom of the reinforcement cage shall be supported so that the proper concrete cover is maintained.

If the conditions differ such that the length of the shaft is increased, additional longitudinal bars shall be either mechanically spliced or lap spliced to the lower end of the reinforcement cage and confined with either hoop ties or spirals. The Contractor shall have additional reinforcement available or fabricate the reinforcement cages with additional length as necessary to make the required adjustments in a timely manner as dictated by the encountered conditions. The additional reinforcement may be non-epoxy coated.

516.13 Concrete Placement. Concrete work shall be performed according to the following.

Throughout concrete placement the head pressure inside the drilled shaft shall be at least 1.1 times the head pressure outside the drilled shaft.

Concrete placement shall begin within 1 hour of shaft cleaning and inspection. The pour shall be made in a continuous manner from the bottom to the top elevation of the shaft as shown on the contract plan or as approved in the Contractor's installation procedure. Concrete placement shall continue after the shaft excavation is full and until 18 in. (450 mm) of good quality, uncontaminated concrete is expelled at the top of shaft. Vibration of the concrete will not be allowed when the concrete is displacing slurry or water. In dry excavations, the concrete in the top 10 ft (3 m) of the shaft shall be vibrated.

When using temporary casing or placing concrete under water or slurry, a minimum of seven days prior to concrete placement, a 4 cu yd (3 cu m) trial batch of the concrete mixture shall be

performed to evaluate slump retention. Temporary casing shall be withdrawn before the slump of the concrete drops below 6 in. (150 mm). For concrete placed using the slurry method of construction, the slump of all concrete placed shall be a minimum of 6 in. (150 mm) at the end of concrete placement.

Devices used to place concrete shall have no aluminum parts in contact with concrete.

When the top of the shaft is at the finished elevation and no further concrete placement above the finished elevation is specified, the top of the shaft shall be level and finished according to Article 503.15(a).

Concrete shall be placed by free fall, tremie, or concrete pump subject to the following conditions.

(a) Free Fall Placement. Concrete shall only be placed by free fall when the rate of water infiltration into the shaft excavation is less than 12 in. (300 mm) per hour and the depth of water in the shaft excavation is less than 3 in. (75 mm) at the time of concrete placement.

Concrete placed by free fall shall fall directly to the base without contacting the reinforcement cage, cross frame stiffeners, or shaft sidewall. Drop chutes may be used to direct concrete to the base during free fall placement.

Drop chutes used to direct placement of free fall concrete shall consist of a smooth tube. Concrete may be placed through either a hopper at the top of the tube or side openings as the drop chute is retrieved during concrete placement. The drop chute shall be supported so that free fall does not exceed 60 ft (18.3 m) for conventional concrete or 30 ft (9.1 m) for self-consolidating concrete. If placement cannot be satisfactorily accomplished by free fall in the opinion of the Engineer, either a tremie or pump shall be used to accomplish the pour.

(b) Tremie and Concrete Pump Placement. Concrete placement shall be according to Article 503.08, except the discharge end of the steel pipe shall remain embedded in the concrete a minimum of 10 ft (3.0 m) throughout concrete placement when displacing slurry or water.

516.14 Construction Tolerances. The following construction tolerances shall apply to all drilled shafts.

(a) Center of Shaft. The center of the drilled shaft shall be within 3 in. (75 mm) of the plan station and offset at the top of the shaft.

(b) Center of Reinforcement Cage. The center of the reinforcement cage shall be within 1 1/2 in. (40 mm) of plan station and offset at the top of the shaft.

(c) Vertical Plumbness of Shaft. The out of vertical plumbness of the shaft shall not exceed 1.5 percent.

(d) Vertical Plumbness of Reinforcement Cage. The out of vertical plumbness of the shaft reinforcement cage shall not exceed 0.83 percent.

(e) Top of Shaft. The top of the shaft shall be no more than 1 in. (25 mm) above and no more than 3 in. (75 mm) below the plan elevation.

(f) Top of Reinforcement Cage. The top of the reinforcement cage shall be no more than 1 in. (25 mm) above and no more than 3 in. (75 mm) below the plan elevation.

(g) Bottom of shaft. Excavation equipment and methods used to complete the shaft excavation shall have a nearly planar bottom. The cutting edges of excavation equipment used to create the bottom of shafts in rock shall be normal to the vertical axis of the shaft within a tolerance of 6.25 percent.

516.15 Method of Measurement. This work will be measured for payment in place and the volume computed in cubic yards (cubic meters). The volume will be computed using the plan diameter of the shaft multiplied by the measured length of the shaft. The length of shaft in soil will be computed as the difference in elevation between the top of the drilled shaft shown on the plans, or as installed as part of the Contractor's installation procedure, and the bottom of the shaft or the top of rock (when present) whichever is higher. The length of shaft in rock will be computed as the difference in elevation between the measured top of rock and the bottom of the shaft.

When permanent casing is specified, it will be measured for payment in place, in feet (meters). Permanent casing installed at the Contractor's option will not be measured for payment.

Reinforcement furnished and installed will be measured for payment according to Article 508.07.

516.16 Basis of Payment. This work will be paid for at the contract unit price per cubic yard (cubic meter) for DRILLED SHAFT IN SOIL, and/or DRILLED SHAFT IN ROCK.

Permanent casing will be paid for at the contract unit price per foot (meter) for PERMANENT CASING.

Reinforcement furnished and installed will be paid for according to Article 508.08.

Obstruction mitigation will be paid for according to Article 109.04.”

CROSSHOLE SONIC LOGGING TESTING OF DRILLED SHAFTS
Effective: April 20, 2016
Revised: August 9, 2019

Description. This work shall consist of furnishing and installing materials and equipment necessary to install access ducts in all drilled shafts of structures identified on the plans, and to perform Crosshole Sonic Logging (CSL) testing of selected drilled shafts on these structures. This work shall be according to Illinois Modified ASTM D6760. This work also includes analysis of the CSL data, preparation of reports summarizing the CSL data, and investigating anomalies identified in the CSL data. This work shall also include grouting of all access ducts after testing and approval by the Engineer.

Materials. Materials shall be according to the following.

(a) Nonshrink Grout (Note 1)…….1024.02
Note 1. Grout shall attain a minimum strength equal to the required strength of the drilled shaft concrete at 14 days.

Qualifications. A consulting firm experienced in CSL testing shall conduct this work. The CSL consulting firm shall be a company independent from the Contractor with a minimum of 3 years of experience in performing CSL testing of drilled shafts. The individual employee of the CSL consulting firm performing analysis of the CSL data and preparing the report shall be an Illinois Licensed Professional Engineer and have experience on a minimum of 5 projects performing CSL testing of drilled shafts.

The name, contact information, and qualifications of the CSL consulting firm, including the names and experience of the individual employees performing and analyzing the test results and preparing the report, shall be submitted to the Engineer at least 30 days prior to drilled shaft construction.

Construction. Access ducts shall be placed in all drilled shafts for the structures indicated on the plans, attached to the reinforcement cage and situated symmetrically around the diameter of the shaft according to the Illinois Modified ASTM D6760. The Engineer will determine which drilled shafts shall have CSL testing performed after the concrete has been placed in the drilled shafts, and may direct additional tests, if necessary, due to problems encountered or observed during drilled shaft construction.

After permission is given by the Engineer, the access ducts shall be grouted. The grout shall be placed with a pump, starting at the bottom of each access duct.

Superimposed loads, either dead or live, shall not be applied to a drilled shaft until CSL testing is completed, CSL reports have been submitted, any necessary repairs have been completed, access ducts have been grouted, and permission has been granted by the Engineer.

Reports. Reports shall be according to Illinois Modified ASTM D6760. Each anomalous zone detected by the CSL testing shall be identified and discussed in the report. An anomalous zone shall be defined as areas where velocity reduction exceeds 20 percent of the average velocity of properly placed and cured shaft concrete at the time of testing.

Anomalies. If anomalies are identified, they shall be investigated by coring or other methods approved by the Engineer.

Correction of Drilled Shaft Defects. When testing determines that a defect is present, the Engineer will direct the Contractor to submit remedial measures for approval. No compensation will be made for remedial work, or losses, or damage, due to remedial work of drilled shafts found defective or not in accordance with the drilled shaft specifications or plans. Modifications to the drilled shaft design, or any load transfer mechanisms required by the remedial action, must be designed, detailed, and sealed by an Illinois Licensed Structural Engineer, and submitted for approval.

Method of Measurement. Installation and grouting of access ducts will be measured for payment per shaft by the linear foot of drilled shaft(s) with access ducts.

CSL testing, analysis, and reporting will be measured for payment by each drilled shaft foundation tested.

Investigation of anomalies will not be measured for payment.

Basis of Payment. Installation and grouting of access ducts will be paid for at the contract unit price per foot for CROSSHOLE SONIC LOGGING ACCESS DUCTS. CSL testing, analysis, and reporting will be paid for at the contract unit price per each for CROSSHOLE SONIC LOGGING TESTING.

ILLINOIS MODIFIED ASTM D6760

Effective Date: August 9, 2019

Standard Test Method for

Integrity Testing of Concrete Deep Foundations by Ultrasonic Crosshole Testing

Reference ASTM D6760-14

<table>
<tr><th>ASTM SECTION</th><th>Illinois Modification</th></tr>
<tr><td>3.1.1</td><td>Revise this section as follows:
access ducts, n – preformed steel tubes or drilled boreholes, placed in the concrete to allow probe entry in pairs to measure pulse transmission in the concrete between the probes.</td></tr>
<tr><td>6.1</td><td>Revise the second sentence of this section as follows:
The tubes shall be mild steel.
Delete the third, fourth, and fifth sentences of this section.</td></tr>
<tr><td>7.1.1</td><td>Revise this section as follows:
The access ducts shall be installed during construction of the drilled shaft.

For drilled shafts foundations, access ducts shall be provided according to the following table.
<table>
<tr><th>Reinforcing Cage Diameter (feet)</th><th>Number of access ducts</th></tr>
<tr><td>≤ 4.0</td><td>3</td></tr>
<tr><td>4.1 to 5.0</td><td>4</td></tr>
<tr><td>5.1 to 7.0</td><td>6</td></tr>
<tr><td>> 7.0</td><td>8</td></tr>
</table>
Access ducts shall be spread equally around the perimeter and spaced at an equal distance from the axis.

Delete Fig. 4.</td></tr>
<tr><td>7.1.2</td><td>Revise the second sentence of this section as follows:
The exterior tube surface shall be free from contamination (for example, oil, dirt, loose rust, mill scale, etc.) to ensure a good bond between the tube surface and the surrounding concrete.</td></tr>
<tr><td>7.1.3</td><td>Delete the third sentence of this section.</td></tr>
</table>

ILLINOIS MODIFIED ASTM D6760

Effective Date: August 9, 2019

Standard Test Method for

Integrity Testing of Concrete Deep Foundations by Ultrasonic Crosshole Testing

Reference ASTM D6760-14

7.2	Revise the first sentence of this section as follows: The access tubes shall be installed such that their bottom is within 4 inches of the bottom of the concrete deep foundation element so that the bottom condition can be tested. Revise the sixth sentence of this section as follows: Access tubes shall be filled with water prior to concrete placement to assure good bonding of the concrete to the tube after the concrete cools. The access tubes shall be kept full of water until the tubes are grouted.
7.3	Revise the first sentence of this section as follows: In cases where drilled shafts to be tested have access ducts that do not permit passage of the probes, do not retain water, are not plumb, are debonded from the concrete, or cannot be used for testing for other reasons, drilled boreholes shall be used to provide probe access.
7.4.2	Revise the second sentence of this section as follows: The tests shall be performed no later than 21 days after concrete casting.
7.6	Delete this section.
7.8.1	Revise the first sentence of this section as follows: If the ultrasonic profile indicates an anomaly, then the suspect anomaly zone shall be further investigated by special test procedures such as fan shaped tests, tests with the probes raised at a fixed offset distance, or other tomographical techniques (1, 2).
7.8.2	Delete Note 5 of this section.

PREFORMED BRIDGE JOINT SEAL
Effective: December 21, 2016
Revised: October 23, 2020

Description. This work shall consist of furnishing all labor, equipment and materials necessary to prepare the joint opening and install preformed bridge joint seal(s) at the locations specified. Unless otherwise detailed on the plans or specified herein, the maximum rated movement for this joint type is 4 inches (100 mm).

Materials: Unless otherwise specified, one of the following prefabricated joint seals will be permitted.

(a) Preformed Pre-compressed, Silicone Coated, Self-Expanding Sealant System. This Sealant system shall be comprised of three components: 1) cellular polyurethane foam impregnated with hydrophobic 100% acrylic, water-based emulsion, factory coated with highway-grade, fuel resistant silicone; 2) field-applied epoxy adhesive primer, 3) field-injected silicone sealant bands.

The preformed, pre-compressed silicone joint seal shall, as a minimum, be according to the following:

- The joint seal shall be held in place by a non-sag, high modulus silicone adhesive.
- The joint seal shall be compatible with the epoxy and header material.
- The joint seal shall withstand the effects of vertical and lateral movements, skew movements and rotational movement without adhesive or cohesive failure.
- The joint seal shall be designed so that, the material is capable of movement of +50%, -50% (100% total) of nominal material size. The gland shall not contain any open, unsealed joints along its length it its final condition.
- Changes in plane and direction shall be executed using factory fabricated transition assemblies fabricated to the angle(s) specified on the plans. The transitions shall be watertight at the inside and outside corners through the full movement of the product.
- The depth of the joint shall be recessed 3/4 in. (19 mm) below the riding surface throughout the normal limits of joint movement.
- The joint seal shall be resistant to ultraviolet rays.
- The joint seal shall be resistant to abrasion, oxidation, oils, gasoline, salt, and other materials that may be spilled on or applied to the surface.
- The manufacturer shall certify that the joint composition shall be free of any waxes or wax compounds; asphalts or asphalt compounds.

The joint material shall meet the following physical properties:

Property	Requirement	Test Method
Tensile Strength of Silicone Coating (min)	140 psi	ASTM D 412
UV Resistance of Joint System	No Changes--2000 Hours	ASTM G155-00A
Density of Cellular Polyurethane Foam (Unconfined)	4.0 lb/ cu ft (200kg/cu m)	ASTM D545
Heat Aging Effects (Silicone Coating)	No cracking, chalking	ASTM C 792
Joint System Operating temp range (min)	-40º F to 185º F	ASTM C 711

The adhesive shall be a two-component, 100% solid, modified epoxy meeting the requirements of ASTM C881, Type I, Grade 3, Class B & C. The adhesive shall also have the following properties:

Property	Requirement	Test method
Tensile Strength	2,500 psi (24 MPa) min.	ASTM D638
Compressive Strength	7000 psi (48 MPa) min.	ASTM D695
Bond Strength (Dry Cure)	2000 psi (28MPa) min	ASTM C882
Water Absorption	0.1% by weight	ASTM D570

The silicone band adhesive shall have the following properties:

Property	Requirement	Test Method
Movement Capability	+50/-50%	ASTM C 719
Elongation at Break	>600%	ASTM D 5893
Slump	≤=0.3"	ASTM D 2202
Hardness (Shore A) max.	20	ASTM C 661
Tack free time (max)	60 minutes	ASTM C 679
Heat Aging Effects	No cracking, chalking	ASTM C 792
Resilience	≥ 75%	ASTM D5329
Bond	0% Adhesive or Cohesive Failure after 5 cycles @100%extension	ASTM D 5329

(b) Preformed Silicone Joint Seal. The preformed silicone joint seal used for this item shall conform to the following specifications:

Table 1
Physical Properties of Preformed Silicone Gland

Property	Requirement	Test Method
Rated Movement Capability	+2 ¼ inch total	N/A
Tensile Strength, psi.	1000 min	ASTM D 412
Elongation	400% min	ASTM D 412
Tear (die B)	100 ppi. min	ASTM D 624
Hardness Durometer (Shore A).	55 +/- 5 max	ASTM D 2240
Compression set at 212°F, 70 hrs	30% max	ASTM D 395
Heat Aged Properties	5pt max loss on Durometer	ASTM D 573
Tensile and Elongation % Loss	10 % max	

The color of the preformed silicone seal shall be black, made by the addition of Carbon Black fillers which increases UV resistance, tensile strength, and abrasion wear properties.

The locking adhesive shall be non-sag, high modulus silicone adhesive conforming to the following specifications:

Table 2
Physical Properties of the Silicone Locking Adhesive

Property	Requirement	Test Method
Tensile Strength, psi.	200 min	ASTM D 412
Elongation, %	450 min	ASTM D 412
Tack Free Time, minutes.	20 max.	ASTM C 679
Cure Time ¼" bead, hrs	24 max	ASTM C 679
Resistance to U.V.	No cracking, chalking,or degradation	ASTM C793
VOC (g/L)	0	ASTM D 3960

Any rips, tears, or bond failure will be cause for rejection.

The two part epoxy primer shall be supplied for application to the vertical faces of the joint opening. The supplied primer shall be equally as effective when bonded to concrete or steel. This primer shall meet the following criteria:

Table 3
Physical Properties of Preformed Silicone Joint System Primer

Property	Requirement	Test Method
Viscosity (cps)	44	ASTM D 2196
Color	Light Amber	Visual
Solids (%)	41	ASTM D 4209
Specific Gravity	0.92	ASTM D 1217
Product Flash Point (◦F, T.C.C.)	48	ASTM D 56
Package Stability	N/A	One year in tightly sealed containers
Cleaning	N/A	Mineral Spirits
VOC (g/L)	520	ASTM D 3960

(a) Preformed Inverted EPDM Joint Seal. The preformed inverted EPDM joint seal used for this item shall conform to the following specifications:

Table 1
Physical Properties of Preformed Silicone Gland

Property	Requirement	Test Method
Rated Movement Capability	Up To 5 inch total	N/A
Tensile Strength, psi.	1200 psi min	ASTM D 412
Elongation	400 % min	ASTM D 412
Tear (Die C)	150 pli. min	ASTM D 624
Durometer Content	50 +/- 5 max	ASTM D 2240
Water Resistance (70 hrs @ 100c)	10% max	ASTM D 471
Ozone Resistance	100 min	ASTM D 1171
Color	Black	Visual

Table 2
Physical Properties of the V-Epoxy-R

V-Epoxy-R adhesive meets the requirements of ASTM C881 Type III, Grade 2. The adhesive shall also have the following properties:

Property	Requirement	Test Method
Color	Gray	Visual
Viscosity	45,000 CP (typ.)	N/A
Gel Time (minutes)	30 min.	ASTM C 881
Shelf Life (Separate Sealed Containers)	12 Months	N/A
Resistance to U.V.	No cracking, chalking,or degradation	ASTM C793
VOC (g/L)	0	ASTM D 3960

Any rips, tears, or bond failure will be cause for rejection.

(d) Bonded Preformed Joint Seal. This joint system shall consist of preformed elastomeric seal bonded to the side walls of the joint opening using an adhesive as specified by the Manufacturer of the joint seal.

The bonded preformed joint seal shall be according to Table 1 of ASTM D2628 with the following exceptions: Compression set shall not be over 40 percent when tested according to Method B (Modified) of ASTM D 395 after 70 hours at 212 ºF (100 ºC). The Compression-Deflection requirement will not apply to the bonded preformed joint seal.

The adhesive shall be epoxy base, dual component, which resists salt, diluted acids, alkalis, solvents, greases, oils, moisture, sunlight and weathering. Temperatures up to 200 ºF (93 ºC) shall not reduce bond strength. At 68 ºF (20 ºC), the bond strength shall be a minimum of 1000 psi (6.9 MPa) within 24 hours.

Any primers or cleaning solutions used on the faces of the joint or on the profile of the sides of the bonded preformed joint seal shall be supplied by the manufacturer of the bonded preformed joint seal.

Any additional installation materials and adhesive for splicing joint sections shall be as supplied by the manufacturer of the preformed joint seal.

The Contractor shall submit the Manufacturer's material certification documentation stating that their materials meet the applicable requirements of this specification for the joint seal(s) installed.

CONSTRUCTION REQUIREMENTS

General. The Contractor shall furnish the Engineer with the manufacturer's product information and installation procedures at least two weeks prior to installation.

The minimum ambient air temperature in which the joint seal can be installed is 40° F (4.4° C) and rising, except for bonded preformed joint seals which shall not be installed when temperatures below 50 ºF (10 ºC) are predicted within a 48 hour period.

The joint surface shall be completely dry before installing the Joint Seal. For newly placed concrete, the concrete shall be fully cured and allowed to dry out a minimum of seven additional days prior to placement of the seal. Cold, wet, inclement weather will require an extended drying time.

The Joint Seal shall not be installed immediately after precipitation or if precipitation is forecasted for the day. Joint preparation and installation of Joint Seal shall be done during the same day.

Surface Preparation. Surface preparation shall be according to the joint seal manufacturer's written instructions.

After surface preparation is completed, the joint shall be cleaned of debris using compressed air with a minimum pressure of 90 psi (620 kPa). The air compressor shall be equipped with traps to prevent the inclusion of water and/or oil in the air line. The compressed air shall be according to the cleanliness requirements of ASTM D 4285.

When priming is required per the manufacturer's instruction, this operation shall immediately follow cleaning.

Joint Installation. The Joint installation shall be per the manufacturer's instructions; special attention shall be given to insure the joint seal is properly recessed below the top of the riding surface as recommended by the manufacturer.

For bonded joint seals the seal shall be inserted into the joint and held tightly against both sides of the joint until sufficient bond strength has been developed to resist the expected expansion forces.

Opening to traffic. As these joint systems are supposed to be recessed below the top of the riding surface, there should be no restriction, based on the joint seal installation, on when these joints can be reopened to traffic.

Method of Measurement. The installed preformed joint seal will be measured for payment in feet (meters) measured along the centerline of joint, from out to out of the deck, no measurement will be made for joint material used to turn up into the parapet, sidewalk, or median.

Basis of Payment. The preformed bridge joint seal will be paid for at the contract unit price per foot (meter) for PREFORMED JOINT SEAL, of the design movement specified, rounded to the nearest half inch (13 mm).

BAR SPLICERS
Effective September 2, 2022

Add the following to Article 508.08(b):

When bar splicers are epoxy-coated, all damaged or uncoated areas near the threaded ends shall be coated with a two-part epoxy according to ASTM D 3963 (D 3963M). All threaded ends of Stage II construction threaded splicer bars shall be coated according to ASTM D 3963 or dipped in an epoxy-mastic primer prior to joining the Stage II construction threaded splicer bar to the threaded coupler.

Add the following to Article 1006.10(a)(1)g:

The Stage I construction threaded splicer bar shall be welded to the threaded coupler using an all-around fillet weld.

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

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. All laborers and mechanics employed or working upon the site of the work, 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 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.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. 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 shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). 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 classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH–1321) shall 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.(1) The contracting officer shall 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 shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore 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 utilized 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) 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 shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, U.S. Department of Labor, Washington, DC 20210. 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.

(3) 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 shall 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.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall 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.

c. 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 shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. 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, 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.

2. Withholding (29 CFR 5.5)

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally- assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, 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.

3. Payrolls and basic records (29 CFR 5.5)

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, 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 section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) 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 section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall 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. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency.

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or

subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR 5.5(a)(3)(i), and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed 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;

(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 of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) 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. 231.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, 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 may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees (29 CFR 5.5)

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed 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 Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall 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 the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall 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, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the

corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. 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 journeymen 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 shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 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 (29 CFR 5.5)

a. By entering into this contract, the contractor certifies that neither it (nor he or she) 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 section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

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 watchmen 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. 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 watchmen 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. 29 CFR 5.5.

* $27 as of January 23, 2019 (See 84 FR 213-01, 218) 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. The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or 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, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 2 of this section. 29 CFR 5.5.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs 1 through 4 of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1 through 4 of this section. 29 CFR 5.5.

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 200.326.

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 200.326.

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.

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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 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).

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.

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Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(a) 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;

(b) 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

(c) 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)

2. 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.

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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.

Contract Provision - Cargo Preference Requirements

In accordance with Title 46 CFR § 381.7 (b), the contractor 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.

(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 Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.

(3) To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract."

Provisions (1) and (2) apply to materials or equipment that are acquired solely for the project. The two provisions do not apply to goods or materials that come into inventories independent of the project, such as shipments of Portland cement, asphalt cement, or aggregates, when industry suppliers and contractors use these materials to replenish existing inventories.