

BID PROPOSAL INSTRUCTIONS

ABOUT IDOT PROPOSALS: All proposals are potential bidding proposals. Each proposal contains all certifications and affidavits, a proposal signature sheet and a proposal bid bond.

PREQUALIFICATION

Any contractor who desires to become pre-qualified to bid on work advertised by IDOT must submit the properly completed pre-qualification forms to the Bureau of Construction no later than 4:30 p.m. prevailing time twenty-one days prior to the letting of interest. This pre-qualification requirement applies to first time contractors, contractors renewing expired ratings, contractors maintaining continuous pre-qualification or contractors requesting revised ratings. To be eligible to bid, existing pre-qualification ratings must be effective through the date of letting.

WHO CAN BID ?

Bids will be accepted from only those companies that request and receive written Authorization to Bid from IDOT's Central Bureau of Construction.

REQUESTS FOR AUTHORIZATION TO BID

Contractors wanting to bid on items included in a particular letting must submit the properly completed "Request for Authorization to Bid/or Not For Bid Status" (BDE 124) and the ORIGINAL "Affidavit of Availability" (BC 57) to the proper office no later than 4:30 p.m. prevailing time, three (3) days prior to the letting date.

WHAT CONSTITUTES WRITTEN AUTHORIZATION TO BID?

When a prospective prime bidder submits a "Request for Authorization to Bid/or Not For Bid Status"(BDE 124) he/she must indicate at that time which items are being requested For Bidding purposes. Only those items requested For Bidding will be analyzed. After the request has been analyzed, the bidder will be issued an **Authorization to Bid or Not for Bid Report**, approved by the Central Bureau of Construction and the Chief Procurement Officer that indicates which items have been approved For Bidding. If **Authorization to Bid** cannot be approved, the **Authorization to Bid or Not for Bid Report** will indicate the reason for denial.

ABOUT AUTHORIZATION TO BID

Firms that have not received an Authorization to Bid or Not For Bid Report within a reasonable time of complete and correct original document submittal should contact the Department as to the status. Firms unsure as to authorization status should call the Prequalification Section of the Bureau of Construction at the number listed at the end of these instructions.

ADDENDA AND REVISIONS

It is the bidder's responsibility to determine which, if any, addenda or revisions pertain to any project they may be bidding. Failure to incorporate all relevant addenda or revisions may cause the bid to be declared unacceptable.

Each addendum or revision will be included with the Electronic Plans and Proposals. Addenda and revisions will also be placed on the Addendum/Revision Checklist and each subscription service subscriber will be notified by e-mail of each addendum and revision issued.

The Internet is the Department's primary way of doing business. The subscription service emails are an added courtesy the Department provides. It is suggested that bidders check IDOT's website at <http://www.idot.illinois.gov/doing-business/procurements/construction-services/construction-bulletins/transportation-bulletin/index#TransportationBulletin> before submitting final bid information.

IDOT IS NOT RESPONSIBLE FOR ANY E-MAIL FAILURES.

Addenda questions may be directed to the Contracts Office at (217)782-7806 or DOT.D&Econtracts@illinois.gov

Technical questions about downloading these files may be directed to Tim Garman at (217)524-1642 or Timothy.Garman@illinois.gov.

STANDARD GUIDELINES FOR SUBMITTING PAPER BIDS

- All pages should be single sided.
- Use the Cover Page that is provided in the Bid Proposal (posted on the IDOT Web Site) as the first page of your submitted bid. It has the item number in large bold type in the upper left-hand corner and lines provided for your company name and address in the upper right-hand corner.
- Do not use report covers, presentation folders or special bindings and do not staple multiple times on left side like a book. Use only 1 staple in the upper left hand corner. Make sure all elements of your bid are stapled together including the bid bond or guaranty check (if required).
- **Do not include any certificates of eligibility, your authorization to bid, Addendum Letters or affidavit of availability.**
- Do not include the Subcontractor Documentation with your bid (pages i – iii and pages a – g). This documentation is required only if you are awarded the project.
- Use the envelope cover sheet (provided with the proposal) as the cover for the proposal envelope.
- Do not rely on overnight services to deliver your proposal prior to 10 AM on letting day. It will not be read if it is delivered after 10 AM.
- Do not submit your Substance Abuse Prevention Program (SAPP) with your bid. If you are awarded the contract this form is to be submitted to the district engineer at the pre-construction conference.

BID SUBMITTAL CHECKLIST

- Cover page** (the sheet that has the item number on it) – This should be the first page of your bid proposal, **followed by your bid (the Schedule of Prices/Pay Items)**. If you are using special software or CBID to generate your schedule of prices, do not include the blank pages of the schedule of prices that came with the proposal package.
- Page 4 (Item 9)** – Check “YES” if you will use a subcontractor(s) with an annual value over \$50,000. Include the subcontractor(s) name, address, general type of work to be performed and the dollar amount. If you will use subcontractor(s) but are uncertain who or the dollar amount; check “YES” but leave the lines blank.
- After page 4** – Insert the following documents: Cost Adjustments for Steel, Bituminous and Fuel (if applicable) and the Contractor Letter of Assent (if applicable). The general rule should be, if you don’t know where it goes, put it after page 4.
- Page 10 (Paragraph J)** – Check “YES” or “NO” whether your company has any business in Iran.
- Page 10 (Paragraph K)** – (Not applicable to federally funded projects) List the name of the apprenticeship and training program sponsor holding the certificate of registration from the US Department of Labor. If no applicable program exists, please indicate the work/job category. **Do not include certificates with your bid.** Keep the certificates in your office in case they are requested by IDOT.
- Page 11 (Paragraph L)** – Your State Board of Elections certificate of registration is no longer required with your bid.
- Page 11 (Paragraph M)** – Indicate if your company has hired a lobbyist in connection with the job for which you are submitting the bid proposal.
- Page 12 (Paragraph C)** – This is a work sheet to determine if a completed Form A is required. It is not part of the form and you do not need to make copies for each completed Form A.
- Pages 14-17 (Form A)** – One Form A (4 pages) is required for each applicable person in your company. Copies of the forms can be used and only need to be changed when the information changes. The certification signature and date must be original for each letting. **Do not staple the forms together.** If you answered “NO” to all of the questions in Paragraph C (page 12), complete the first section (page 14) with your company information and then sign and date the Not Applicable statement on page 17.
- Page 18 (Form B)** - If you check “YES” to having other current or pending contracts it is acceptable to use the phrase, “See Affidavit of Availability on file”. **Ownership Certification** (at the bottom of the page) - Check N/A if the Form A(s) you submitted accounts for 100 percent of the company ownership. Check YES if any percentage of ownership falls outside of the parameters that require reporting on the Form A. Checking NO indicates that the Form A(s) you submitted is not correct and you will be required to submit a revised Form A.
- Page 20 (Workforce Projection)** – Be sure to include the Duration of the Project. It is acceptable to use the phrase “Per Contract Specifications”.

- Proposal Bid Bond** – (Insert after the proposal signature page) Submit your Proposal Bid Bond (if applicable) using the current Proposal Bid Bond form provided in the proposal package. The Power of Attorney page should be stapled to the Proposal Bid Bond. If you are using an electronic bond, include your bid bond number on the Proposal Bid Bond and attach the Proof of Insurance printed from the Surety’s Web Site.
- Disadvantaged Business Utilization Plan and/or Good Faith Effort – Do Not Submit with Bid** The bidder shall submit a Disadvantaged Business Utilization Plan on completed Department forms SBE 2025 and 2026. (1) The final Utilization Plan must be submitted within five calendar days after the date of the letting. (2) To meet the five day requirement, the bidder may send the Utilization Plan electronically by scanning and sending to DOT.DBE.UP@illinois.gov or faxing to (217) 785-1524. The subject line must include the bid Item Number and the Letting date. The Utilization Plan should be sent as one .pdf file, rather than multiple files and emails for the same Item Number. It is the responsibility of the bidder to obtain confirmation of email or fax delivery.

Alternatively, the Utilization Plan may be sent by certified mail or delivery service within the five calendar day period. If a question arises concerning the mailing date of a Utilization Plan, the mailing date will be established by the U.S. Postal Service postmark on the certified mail receipt from the U.S. Postal Service or the receipt issued by a delivery service. It is the responsibility of the bidder to ensure the postmark or receipt date is affixed within the five days if the bidder intends to rely upon mailing or delivery to satisfy the submission day requirement. The Utilization Plan is to be submitted to:

Illinois Department of Transportation
 Bureau of Small Business Enterprises
 Contract Compliance Section
 2300 South Dirksen Parkway, Room 319
 Springfield, Illinois 62764

The Bid Letting is now available in streaming Audio/Video from the IDOT Web Site. A link to the stream will be placed on the main page of the current letting on the day of the Letting. The stream will not begin until 10 AM. The actual reading of the bids does not begin until approximately 10:30 AM.

Following the Letting, the As-Read Tabulation of Bids will be posted by the end of the day. You will find the link on the main Web page for the current letting.

QUESTIONS: pre-letting up to execution of the contract

Contractor pre-qualification	217-782-3413
Small Business, Disadvantaged Business Enterprise (DBE)	217-785-4611
Contracts, Bids, Letting process or Internet downloads	217-782-7806
Estimates Unit.....	217-785-3483
Aeronautics.....	217-785-8515
IDNR (Land Reclamation, Water Resources, Natural Resources).....	217-782-6302

QUESTIONS: following contract execution

Subcontractor documentation, payments	217-782-3413
Railroad Insurance	217-785-0275

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RETURN WITH BID

Proposal Submitted By
Name
Address
City

Letting July 29, 2016

NOTICE TO PROSPECTIVE BIDDERS

This proposal can be used for bidding purposes by only those companies that request and receive written AUTHORIZATION TO BID from IDOT's Central Bureau of Construction.

BIDDERS NEED NOT RETURN THE ENTIRE PROPOSAL

Notice to Bidders, Specifications, Proposal, Contract and Contract Bond



**Illinois Department
of Transportation**

Springfield, Illinois 62764

**Contract No. 91540
CHAMPAIGN County
Section 15-00304-02-PV (City Of Champaign)
Various Routes
Project TIG-5181(057)
District 5 Construction Funds**

PLEASE MARK THE APPROPRIATE BOX BELOW:

- A Bid Bond is included.
- A Cashier's Check or a Certified Check is included
- An Annual Bid Bond is included or is on file with IDOT.

Prepared by

Checked by

F

(Printed by authority of the State of Illinois)

Page intentionally left blank

RETURN WITH BID



PROPOSAL

TO THE DEPARTMENT OF TRANSPORTATION

1. Proposal of _____

Taxpayer Identification Number (Mandatory) _____

For the improvement identified and advertised for bids in the Invitation for Bids as:

**Contract No. 91540
CHAMPAIGN County
Section 15-00304-02-PV (City Of Champaign)
Project TIG-5181(057)
Various Routes
District 5 Construction Funds**

Intersection and pavement improvements on Green Street from Neil Street to Fourth Street; White Street from Second Street to Wright Street and Wright Street from White Street to Springfield Avenue in the City of Champaign.

2. The undersigned bidder will furnish all labor, material and equipment to complete the above described project in a good and workmanlike manner as provided in the contract documents provided by the Department of Transportation. This proposal will become part of the contract and the terms and conditions contained in the contract documents will govern performance and payments.

RETURN WITH BID

3. **ASSURANCE OF EXAMINATION AND INSPECTION/WAIVER.** The undersigned bidder further declares that he/she has carefully examined the proposal, plans, specifications, addenda form of contract and contract bond, and special provisions, and that he/she has inspected in detail the site of the proposed work, and that he/she has familiarized themselves with all of the local conditions affecting the contract and the detailed requirements of construction, and understands that in making this bid proposal he/she waives all right to plead any misunderstanding regarding the same.

4. **EXECUTION OF CONTRACT AND CONTRACT BOND.** The undersigned bidder further agrees to execute a contract for this work and present the same to the department within fifteen (15) days after the contract has been mailed to him/her. The undersigned further agrees that he/she and his/her surety will execute and present within fifteen (15) days after the contract has been mailed to him/her contract bond satisfactory to and in the form prescribed by the Department of Transportation, in the penal sum of the full amount of the contract, or as specified in the special provisions, guaranteeing the faithful performance of the work in accordance with the terms of the contract.

5. **PROPOSAL GUARANTY.** Accompanying this proposal is either a bid bond on the department form, executed by a corporate surety company satisfactory to the department, or a proposal guaranty check consisting of a bank cashier's check or a properly certified check for not less than 5 per cent of the amount bid or for the amount specified in the following schedule:

<u>Amount of Bid</u>		<u>Proposal Guaranty</u>	<u>Amount of Bid</u>		<u>Proposal Guaranty</u>	
Up to	\$5,000	\$150	\$2,000,000	to	\$3,000,000	\$100,000
\$5,000	to \$10,000	\$300	\$3,000,000	to	\$5,000,000	\$150,000
\$10,000	to \$50,000	\$1,000	\$5,000,000	to	\$7,500,000	\$250,000
\$50,000	to \$100,000	\$3,000	\$7,500,000	to	\$10,000,000	\$400,000
\$100,000	to \$150,000	\$5,000	\$10,000,000	to	\$15,000,000	\$500,000
\$150,000	to \$250,000	\$7,500	\$15,000,000	to	\$20,000,000	\$600,000
\$250,000	to \$500,000	\$12,500	\$20,000,000	to	\$25,000,000	\$700,000
\$500,000	to \$1,000,000	\$25,000	\$25,000,000	to	\$30,000,000	\$800,000
\$1,000,000	to \$1,500,000	\$50,000	\$30,000,000	to	\$35,000,000	\$900,000
\$1,500,000	to \$2,000,000	\$75,000	over		\$35,000,000	\$1,000,000

Bank cashier's checks or properly certified checks accompanying bid proposals will be made payable to the Treasurer, State of Illinois.

If a combination bid is submitted, the proposal guaranties which accompany the individual bid proposals making up the combination will be considered as also covering the combination bid.

The amount of the proposal guaranty check is _____ \$(_____). If this proposal is accepted and the undersigned will fail to execute a contract bond as required herein, it is hereby agreed that the amount of the proposal guaranty will become the property of the State of Illinois, and shall be considered as payment of damages due to delay and other causes suffered by the State because of the failure to execute said contract and contract bond; otherwise, the bid bond will become void or the proposal guaranty check will be returned to the undersigned.

Attach Cashier's Check or Certified Check Here

In the event that one proposal guaranty check is intended to cover two or more bid proposals, the amount must be equal to the sum of the proposal guaranties which would be required for each individual bid proposal. If the guaranty check is placed in another bid proposal, state below where it may be found.

The proposal guaranty check will be found in the bid proposal for:

Item _____

Section No. _____

County _____

Mark the proposal cover sheet as to the type of proposal guaranty submitted.

RETURN WITH BID

6. **COMBINATION BIDS.** The undersigned bidder further agrees that if awarded the contract for the sections contained in the following combination, he/she will perform the work in accordance with the requirements of each individual contract comprising the combination bid specified in the schedule below, and that the combination bid shall be prorated against each section in proportion to the bid submitted for the same. If an error is found to exist in the gross sum bid for one or more of the individual sections included in a combination, the combination bid shall be corrected as provided in the specifications.

When a combination bid is submitted, the schedule below must be completed in each proposal comprising the combination.

If alternate bids are submitted for one or more of the sections comprising the combination, a combination bid must be submitted for each alternate.

Schedule of Combination Bids

Combination No.	Sections Included in Combination	Combination Bid	
		Dollars	Cents

7. **SCHEDULE OF PRICES.** The undersigned bidder submits herewith, in accordance with the rules and instructions, a schedule of prices for the items of work for which bids are sought. The unit prices bid are in U.S. dollars and cents, and all extensions and summations have been made. The bidder understands that the quantities appearing in the bid schedule are approximate and are provided for the purpose of obtaining a gross sum for the comparison of bids. If there is an error in the extension of the unit prices, the unit prices will govern. Payment to the contractor awarded the contract will be made only for actual quantities of work performed and accepted or materials furnished according to the contract. The scheduled quantities of work to be done and materials to be furnished may be increased, decreased or omitted as provided elsewhere in the contract.
8. **AUTHORITY TO DO BUSINESS IN ILLINOIS.** Section 20-43 of the Illinois Procurement Code (the Code) (30 ILCS 500/20-43) provides that a person (other than an individual acting as a sole proprietor) must be a legal entity authorized to transact business or conduct affairs in the State of Illinois prior to submitting the bid.
9. **EXECUTION OF CONTRACT:** The Department of Transportation will, in accordance with the rules governing Department procurements, execute the contract and shall be the sole entity having the authority to accept performance and make payments under the contract. Execution of the contract by the Chief Procurement Officer (CPO) or the State Purchasing Officer (SPO) is for approval of the procurement process and execution of the contract by the Department. Neither the CPO nor the SPO shall be responsible for administration of the contract or determinations respecting performance or payment there under except as otherwise permitted in the Code.
10. **The services of a subcontractor will be used.**

Check box Yes
 Check box No

For known subcontractors with subcontracts with an annual value of more than \$50,000, the contract shall include their name, address, general type of work to be performed, and the dollar allocation for each subcontractor.
 (30 ILCS 500/20-120)

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 91540

ECMS002 DTGECM03 ECMR003 PAGE
 RUN DATE - 06/23/16
 RUN TIME - 183030

STATE JOB #- C-95-305-16
 PPS NBR -

COUNTY NAME	CODE	DIST	SECTION NUMBER	PROJECT NUMBER	ROUTE
CHAMPAIGN	019	05	15-00304-02-PV (CHAMPAIGN)	TIG-5181/057/000	VARIOUS

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
A2002520	T-CARP CAROL 2-1/2	EACH	5.000	X	=	=	=
A2004568	T-GINKGO BIL MA 3	EACH	21.000	X	=	=	=
A2004617	T-GLED TR-I DRV 2-1/2	EACH	35.000	X	=	=	=
B2000568	T-AMELAN CAN SF 7'	EACH	3.000	X	=	=	=
K0012970	PERENNIAL PLNT BULB T	UNIT	41.000	X	=	=	=
K0012990	P PL ORNAMENT T GAL P	UNIT	59.000	X	=	=	=
K1005481	SHRED BARK MULCH 3	SQ YD	865.000	X	=	=	=
XX000717	STORM SEWER CONN SPL	EACH	50.000	X	=	=	=
XX000959	TRASH RECEPTACLES	EACH	30.000	X	=	=	=
XX001186	PLANTER REMOVAL	EACH	8.000	X	=	=	=
XX001683	INFORMATION KIOSK	EACH	4.000	X	=	=	=
XX002082	SAN SEW REMOV 24	FOOT	88.000	X	=	=	=
XX002176	CONC STEP REMOVAL	L SUM	1.000	X	=	=	=
XX003120	YARD HYDRANT (FP)	EACH	24.000	X	=	=	=
XX003614	REC (GFI) WEATHER CVR	EACH	25.000	X	=	=	=

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
XX003915	BRICK WALL	FOOT	50.000 X	=	=	=	=
XX004360	SAN SEW BYPASS PUMP	L SUM	1.000 X	=	=	=	=
XX004951	CONCRETE STAIRS	L SUM	1.000 X	=	=	=	=
XX005238	TOPSOIL F & P VAR D	CU YD	200.000 X	=	=	=	=
XX005281	STL CAS P BOR/JKD 16	FOOT	32.000 X	=	=	=	=
XX005425	LANDSCAPE BOLLARDS	EACH	8.000 X	=	=	=	=
XX005476	D I WM 12 RJ	FOOT	2,345.000 X	=	=	=	=
XX005477	D I WM 4 RJ	FOOT	259.000 X	=	=	=	=
XX005478	D I WM 6 RJ	FOOT	308.000 X	=	=	=	=
XX005479	D I WM 8 RJ	FOOT	730.000 X	=	=	=	=
XX005642	GATEWAY MON SIGN COMP	EACH	1.000 X	=	=	=	=
XX005703	REMOV EX TS EQUIP SPL	L SUM	1.000 X	=	=	=	=
XX005713	ORNAMENTAL RAILING	FOOT	152.000 X	=	=	=	=
XX005735	PLANTER CURB	FOOT	3,146.000 X	=	=	=	=
XX006429	SIDEWALK, SPECIAL	SQ FT	14,277.000 X	=	=	=	=

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
XX006570	TREES (SPECIAL)	EACH	39.000 X	=	=	=	=
XX006677	TREE WELL	EACH	64.000 X	=	=	=	=
XX006739	CONCRETE PAVERS TYP A	SQ FT	12,183.000 X	=	=	=	=
XX006740	CONCRETE PAVERS TYP B	SQ FT	3,368.000 X	=	=	=	=
XX006901	TREE GRATE ASSEM COMP	EACH	3.000 X	=	=	=	=
XX006991	BRICK FACADE	SQ FT	856.000 X	=	=	=	=
XX007100	LIMESTONE CAP	FOOT	214.000 X	=	=	=	=
XX007151	PLANTER RAILING	FOOT	2,952.000 X	=	=	=	=
XX007245	CONCRETE SADDLE SUPP	EACH	14.000 X	=	=	=	=
XX007321	PREC PLANTER EDGE TY1	EACH	24.000 X	=	=	=	=
XX007322	PREC PLANTER EDGE TY2	EACH	12.000 X	=	=	=	=
XX007334	PVC CASING PIPE 4	FOOT	22.000 X	=	=	=	=
XX007418	FLAT SEAT BOULDER TA	EACH	57.000 X	=	=	=	=
XX007468	PEDESTRIAN ST LIGHT	EACH	41.000 X	=	=	=	=
XX007562	SIGN REMOVAL SPECIAL	L SUM	1.000 X	=	=	=	=

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 91540

VARIOUS
 15-00304-02-PV (CHAMPAIGN)
 CHAMPAIGN

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CENTS
XX007733	SALVAGED AGG MAT 8	SQ YD	200.000 X	=		=	
XX007734	SALVAGED AGG MAT 12	SQ YD	200.000 X	=		=	
XX007759	ADJ SAN SEW CLEANOUT	EACH	15.000 X	=		=	
XX007797	LUMINAIRE SPL	EACH	8.000 X	=		=	
XX007891	CONFLIC MAN 5D T1F CL	EACH	1.000 X	=		=	
XX007920	LANDSCAPING STONE	TON	5.000 X	=		=	
XX007968	PVC CASING PIPE 12	FOOT	22.000 X	=		=	
XX008086	BLOCK RETAIN WALL	SQ FT	320.000 X	=		=	
XX008113	SEWER P BULKHEAD 60	EACH	2.000 X	=		=	
XX008160	DEC LT SYS COMPLETE	L SUM	1.000 X	=		=	
XX008263	PCC PLATFORM SPL	SQ FT	2,661.000 X	=		=	
XX008269	WAYFINDING SIGN	EACH	1.000 X	=		=	
XX008280	ORNAM LT SIN TD FIX	EACH	6.000 X	=		=	
XX008741	STORM SEW CL B 2 8	FOOT	89.000 X	=		=	
XX008839	WATER MAIN ABANDONED	L SUM	1.000 X	=		=	

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CENTS
XX008889	PVC CASING PIPE 15	FOOT	19.000 X	=			
XX008979	CONCRETE COLLAR	EACH	64.000 X	=			
XX009026	BENCH REMOVAL	EACH	8.000 X	=			
XX009125	BUS SHELTER TYPE 1	EACH	9.000 X	=			
XX009126	BUS SHELTER TYPE 1A	EACH	1.000 X	=			
XX009127	BUS SHELTER TYPE 2	EACH	3.000 X	=			
XX009128	FIB OPT CBL CON SPL	FOOT	1,155.000 X	=			
XX009129	D I WM 20 RJ	FOOT	34.000 X	=			
XX009130	STL CAS P BOR/JKD 12	FOOT	37.000 X	=			
XX009131	TAP VALVE & SLEEVE 2	EACH	1.000 X	=			
XZ127900	RETAINING WALL REMOV	FOOT	30.000 X	=			
X0300019	REM REIN PARKING BLKS	EACH	6.000 X	=			
X0301339	REM EX PARKING BLOCKS	EACH	10.000 X	=			
X0301430	PREC CONC PARK BLOCK	EACH	3.000 X	=			
X0320239	CONC WALL REMOV	FOOT	64.000 X	=			

VARIOUS
 15-00304-02-PV (CHAMPAIGN)
 CHAMPAIGN

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CENTS
X0321620	SAN SEW REMOV 21	FOOT	58.000 X	=	=	=	=
X0321690	BRICK WALL REMOV	FOOT	64.000 X	=	=	=	=
X0322024	TRENCH DRAIN	EACH	2.000 X	=	=	=	=
X0322208	TEMP STORM SEWER PLUG	EACH	1.000 X	=	=	=	=
X0322281	W A VID DET SYS COM	EACH	2.000 X	=	=	=	=
X0322791	FILL EXIST SAN SEWER	CU YD	3.000 X	=	=	=	=
X0323003	TEMP ELECT SERV INST	EACH	1.000 X	=	=	=	=
X0323265	REMOVE EXIST RIPRAP	SQ YD	25.000 X	=	=	=	=
X0323706	TRASH RECEPTACLE REL	EACH	6.000 X	=	=	=	=
X0323814	SAN SEW REMOV 18	FOOT	89.000 X	=	=	=	=
X0323859	DOWNSPOUT CONNECTION	EACH	8.000 X	=	=	=	=
X0324078	CONFLICT MANHOLES	EACH	1.000 X	=	=	=	=
X0324752	STORM SEWER FILLED	CU YD	27.000 X	=	=	=	=
X0325541	REM EX LIGHTING SYSTM	L SUM	1.000 X	=	=	=	=
X0326519	STEEL RAILING REMOVAL	FOOT	122.000 X	=	=	=	=

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
X0326654	ORNAM LIGHT UNIT COMP	EACH	73.000 X	=	=	=	=
X0326981	ENGINEERD SOIL F P SPL	CU YD	171.000 X	=	=	=	=
X0327124	PRECAST CONC RISER	EACH	4.000 X	=	=	=	=
X0327241	STL CAS P TR 24	FOOT	136.000 X	=	=	=	=
X0327367	STL CAS P BOR/JKD 24	FOOT	27.000 X	=	=	=	=
X0327546	LINE STOP 20	EACH	2.000 X	=	=	=	=
X0327552	TREE GRATE REMOVAL	EACH	3.000 X	=	=	=	=
X0327698	LED IN IL STNAME SIGN	EACH	8.000 X	=	=	=	=
X0327739	MISC ELECTRICAL WORK	L SUM	1.000 X	=	=	=	=
X0327762	RAILROAD FLAGGER	L SUM	1.000 X	=	=	=	=
X0327814	PLNTG SOIL MIX F&P 24	SQ YD	825.000 X	=	=	=	=
X0327980	PAVMT MRKG REM WTR BL	SQ FT	668.000 X	=	=	=	=
X0487700	SAN SEW REMOV 10	FOOT	648.000 X	=	=	=	=
X0840000	SAN SEW REMOV 8	FOOT	66.000 X	=	=	=	=
X1200016	SAN SERVICE REPLCMNT	EACH	42.000 X	=	=	=	=

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 91540

VARIOUS
 15-00304-02-PV (CHAMPAIGN)
 CHAMPAIGN

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
X1200059	MAN RSR STR (O B)	EACH	4.000 X	=	=	=	=
X3510407	AGG BASE CSE CA-7	TON	7.000 X	=	=	=	=
X4200409	PCC PVT 9 SPL	SQ YD	1,277.000 X	=	=	=	=
X4230800	PCC DRIVEWAY PVT 8 SP	SQ YD	63.000 X	=	=	=	=
X5011100	FOUNDATION REM	EACH	2.000 X	=	=	=	=
X5020200	STRUCTURE EXCAV SPL	CU YD	347.000 X	=	=	=	=
X5030225	CONC STRUCT SPL	CU YD	146.400 X	=	=	=	=
X5610744	WM LINE STOP 4	EACH	3.000 X	=	=	=	=
X5610746	WM LINE STOP 6	EACH	7.000 X	=	=	=	=
X5610748	WM LINE STOP 8	EACH	2.000 X	=	=	=	=
X5610752	WM LINE STOP 12	EACH	2.000 X	=	=	=	=
X5619340	VALVE BOX ASSY MLF	EACH	1.000 X	=	=	=	=
X5930100	CONTR LOWSTR MATL SPL	CU YD	4,856.000 X	=	=	=	=
X6020074	INLETS TA T3V F&G	EACH	43.000 X	=	=	=	=
X6020075	INLETS TB T3V F&G	EACH	23.000 X	=	=	=	=

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 91540

VARIOUS
 15-00304-02-PV (CHAMPAIGN)
 CHAMPAIGN

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
X6020084	MANHOLE SPECIAL	EACH	8.000 X	=	=	=	=
X6022230	MAN TA 4 DIA SPL F&G	EACH	2.000 X	=	=	=	=
X6022312	DROP SAN MAN T1F CL	EACH	1.000 X	=	=	=	=
X6022810	MAN SAN 4 DIA T1F CL	EACH	4.000 X	=	=	=	=
X6022820	MAN SAN 5 DIA T1F CL	EACH	1.000 X	=	=	=	=
X6022930	MAN TA 5 DIA SPL F&G	EACH	1.000 X	=	=	=	=
X6023508	INLETS TA W/SPL F&G	EACH	6.000 X	=	=	=	=
X6024242	INLETS SPL N1	EACH	4.000 X	=	=	=	=
X6024244	INLETS SPL N2	EACH	8.000 X	=	=	=	=
X6024246	INLETS SPL N3	EACH	4.000 X	=	=	=	=
X6024248	INLETS SPL N4	EACH	1.000 X	=	=	=	=
X6024250	INLETS SPL N5	EACH	8.000 X	=	=	=	=
X6024252	INLETS SPL N6	EACH	2.000 X	=	=	=	=
X6024502	INLETS TB W/SPL F&G	EACH	7.000 X	=	=	=	=
X6025600	MAN ADJUST SPL	EACH	2.000 X	=	=	=	=

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
X6026050	SANITARY MANHOLE ADJ	EACH	11.000 X	=	=	=	=
X6026051	SAN MAN RECONST	EACH	3.000 X	=	=	=	=
X6026054	SAN MAN REMOVED	EACH	9.000 X	=	=	=	=
X6026622	VV REMOVED	EACH	1.000 X	=	=	=	=
X6026624	VALVE BOX ADJ SPL	EACH	26.000 X	=	=	=	=
X6040205	FRAMES & LIDS SPECIAL	EACH	5.000 X	=	=	=	=
X6060048	COMB CC&G TB6.18 SPL	FOOT	858.000 X	=	=	=	=
X6060505	CONC CURB SPL	FOOT	5.000 X	=	=	=	=
X6061005	CONC CURB TB SPL	FOOT	64.000 X	=	=	=	=
X6061610	COMB CC&G TB MOD	FOOT	442.000 X	=	=	=	=
X6061700	COMB CC&G TB SPL	FOOT	261.000 X	=	=	=	=
X6064200	COMB CC&G TB6.12 SPL	FOOT	67.000 X	=	=	=	=
X6300230	STEEL POSTS	EACH	10.000 X	=	=	=	=
X7010216	TRAF CONT & PROT SPL	L SUM	1.000 X	=	=	=	=
X7015005	CHANGEABLE MESSAGE SN	CAL DA	370.000 X	=	=	=	=

VARIOUS
 15-00304-02-PV (CHAMPAIGN)
 CHAMPAIGN

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
X8040102	ELECT SERV INSTALL SP	EACH	5.000				
X8130110	JUNCTION BOX SPL	EACH	72.000				
X8130125	REM EX JUNCTION BOX	EACH	16.000				
X8140115	HANDHOLE TO BE ADJUST	EACH	3.000				
X8211000	UNDERPASS LUM (SP)	EACH	6.000				
X8250505	LIGHT CONTROLLER SPL	EACH	5.000				
X8360120	LIGHT POLE FDN SPL	EACH	6.000				
X8360210	LIGHT POLE FDN 24D SP	FOOT	376.000				
X8410151	TEMP LT SYSTEM LOC 1	L SUM	1.000				
X8410152	TEMP LT SYSTEM LOC 2	L SUM	1.000				
X8410153	TEMP LT SYSTEM LOC 3	L SUM	1.000				
X8570226	FAC T4 CAB SPL	EACH	2.000				
X8710012	FOCC INSTALL ONLY	FOOT	347.000				
X8760200	ACCESSIBLE PED SIGNAL	EACH	16.000				
X8870300	EVP SYSTEM	EACH	2.000				

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
Z0003855	BICYCLE RACKS	EACH	52.000 X	=	=	=	=
Z0004002	BOLLARDS	EACH	2.000 X	=	=	=	=
Z0007112	C&D LEAD PT CL RES	L SUM	1.000 X	=	=	=	=
Z0007122	REM & RE EX RAILING	FOOT	38.000 X	=	=	=	=
Z0007430	TEMP SIDEWALK	SQ FT	943.000 X	=	=	=	=
Z0012754	STR REP CON DP = < 5	SQ FT	720.000 X	=	=	=	=
Z0012755	STR REP CON DP OVER 5	SQ FT	360.000 X	=	=	=	=
Z0013798	CONSTRUCTION LAYOUT	L SUM	1.000 X	=	=	=	=
Z0036500	PAINTING	L SUM	1.000 X	=	=	=	=
Z0036700	PARK METER POSTS REM	EACH	36.000 X	=	=	=	=
Z0042300	PC CONC SIDEWALK CURB	FOOT	150.000 X	=	=	=	=
Z0048665	RR PROT LIABILITY INS	L SUM	1.000 X	=	=	=	=
Z0056644	SS 1 WAT MN 8	FOOT	211.000 X	=	=	=	=
Z0056648	SS 1 WAT MN 12	FOOT	2,275.000 X	=	=	=	=
Z0056650	SS 1 WAT MN 15	FOOT	343.000 X	=	=	=	=

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
Z0056668	SS 2 WAT MN 12	FOOT	799.000 X	=	=	=	=
Z0056669	SS 2 WAT MN 15	FOOT	279.000 X	=	=	=	=
Z0056670	SS 2 WAT MN 18	FOOT	147.000 X	=	=	=	=
Z0056672	SS 2 WAT MN 24	FOOT	391.000 X	=	=	=	=
Z0056678	SS 2 WAT MN 36	FOOT	52.000 X	=	=	=	=
Z0056800	SAN SEW 6	FOOT	34.000 X	=	=	=	=
Z0056900	SAN SEW 8	FOOT	66.000 X	=	=	=	=
Z0057000	SAN SEW 10	FOOT	534.000 X	=	=	=	=
Z0057400	SAN SEW 21	FOOT	58.000 X	=	=	=	=
Z0057500	SAN SEW 24	FOOT	93.000 X	=	=	=	=
Z0076600	TRAINEES	HOOR	2,000.000 X	0.80	=	1,600.00	=
Z0076604	TRAINEES TPG	HOOR	2,000.000 X	15.00	=	30,000.00	=
20100110	TREE REMOV 6-15	UNIT	220.000 X	=	=	=	=
20100210	TREE REMOV OVER 15	UNIT	222.000 X	=	=	=	=
20101200	TREE ROOT PRUNING	EACH	66.000 X	=	=	=	=

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
20101300	TREE PRUN 1-10	EACH	9.000 X	=	=	=	=
20101350	TREE PRUN OVER 10	EACH	14.000 X	=	=	=	=
20200100	EARTH EXCAVATION	CU YD	13,178.000 X	=	=	=	=
20201200	REM & DISP UNS MATL	CU YD	3,940.000 X	=	=	=	=
20700110	POROUS GRAN EMBANK	TON	3,002.000 X	=	=	=	=
21000300	GRAN EMBANK SPEC	TON	8,077.000 X	=	=	=	=
21001000	GEOTECH FAB F/GR STAB	SQ YD	11,820.000 X	=	=	=	=
21101625	TOPSOIL F & P 6	SQ YD	10,616.000 X	=	=	=	=
25000400	NITROGEN FERT NUTR	POUND	135.000 X	=	=	=	=
25000500	PHOSPHORUS FERT NUTR	POUND	135.000 X	=	=	=	=
25000600	POTASSIUM FERT NUTR	POUND	135.000 X	=	=	=	=
25000750	MOWING	ACRE	2.500 X	=	=	=	=
25200100	SODDING	SQ YD	10,616.000 X	=	=	=	=
25200200	SUPPLE WATERING	UNIT	107.000 X	=	=	=	=
28000250	TEMP EROS CONTR SEED	POUND	211.000 X	=	=	=	=

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CENTS
28000400	PERIMETER EROS BAR	FOOT	868.000 X	=			
28000500	INLET & PIPE PROTECT	EACH	16.000 X	=			
28000510	INLET FILTERS	EACH	341.000 X	=			
35100300	AGG BASE CSE A 4	SQ YD	297.000 X	=			
35101100	AGG BASE CSE A 12	SQ YD	29,736.000 X	=			
35101600	AGG BASE CSE B 4	SQ YD	1,587.000 X	=			
40201000	AGGREGATE-TEMP ACCESS	TON	79.000 X	=			
40600295	P BIT MATLS TACK CT	POUND	1,270.000 X	=			
40600400	MIX CR JTS FLANGEWYS	TON	0.600 X	=			
40600847	P LB MM IL-9.5FG N90	TON	316.000 X	=			
40600990	TEMPORARY RAMP	SQ YD	200.000 X	=			
40603520	P HMA SC "C" N90	TON	316.000 X	=			
40800050	INCIDENTAL HMA SURF	TON	262.000 X	=			
42000401	PCC PVT 9 JOINTED	SQ YD	13,490.000 X	=			
42000501	PCC PVT 10 JOINTED	SQ YD	9,224.000 X	=			

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CENTS
42001300	PROTECTIVE COAT	SQ YD	27,862.000 X	=	=	=	=
42300200	PCC DRIVEWAY PAVT 6	SQ YD	228.000 X	=	=	=	=
42300400	PCC DRIVEWAY PAVT 8	SQ YD	1,160.000 X	=	=	=	=
42400300	PC CONC SIDEWALK 6	SQ FT	96,233.000 X	=	=	=	=
42400800	DETECTABLE WARNINGS	SQ FT	1,904.000 X	=	=	=	=
44000100	PAVEMENT REM	SQ YD	26,673.000 X	=	=	=	=
44000161	HMA SURF REM 3	SQ YD	2,824.000 X	=	=	=	=
44000200	DRIVE PAVEMENT REM	SQ YD	2,097.000 X	=	=	=	=
44000500	COMB CURB GUTTER REM	FOOT	14,047.000 X	=	=	=	=
44000600	SIDEWALK REM	SQ FT	77,912.000 X	=	=	=	=
44001980	CONC BARRIER REMOV	FOOT	401.000 X	=	=	=	=
44201769	CL D PATCH T3 10	SQ YD	164.000 X	=	=	=	=
44300200	STRIP REF CR CON TR	FOOT	1,856.000 X	=	=	=	=
50300285	FORM LINER TEX SURF	SQ FT	416.000 X	=	=	=	=
50606701	C & P STRUCT STL L1	L SUM	1.000 X	=	=	=	=

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
50900805	PEDESTRIAN RAIL	FOOT	303.000 X	=	=	=	=
50901760	PIPE HANDRAIL	FOOT	102.000 X	=	=	=	=
550A0050	STORM SEW CL A 1 12	FOOT	915.000 X	=	=	=	=
550A0090	STORM SEW CL A 1 18	FOOT	146.000 X	=	=	=	=
550A0180	STORM SEW CL A 1 42	FOOT	52.000 X	=	=	=	=
550A0340	STORM SEW CL A 2 12	FOOT	626.000 X	=	=	=	=
550A0360	STORM SEW CL A 2 15	FOOT	721.000 X	=	=	=	=
550A0380	STORM SEW CL A 2 18	FOOT	55.000 X	=	=	=	=
550A0410	STORM SEW CL A 2 24	FOOT	446.000 X	=	=	=	=
550A0430	STORM SEW CL A 2 30	FOOT	56.000 X	=	=	=	=
550A0450	STORM SEW CL A 2 36	FOOT	30.000 X	=	=	=	=
550A4900	SS CL A 2 EQRS 24	FOOT	21.000 X	=	=	=	=
550B0050	STORM SEW CL B 1 12	FOOT	148.000 X	=	=	=	=
550B0330	STORM SEW CL B 2 10	FOOT	134.000 X	=	=	=	=
55100200	STORM SEWER REM 6	FOOT	44.000 X	=	=	=	=

VARIOUS
 15-00304-02-PV (CHAMPAIGN)
 CHAMPAIGN

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
55100300	STORM SEWER REM 8	FOOT	376.000 X	=	=	=	=
55100400	STORM SEWER REM 10	FOOT	817.000 X	=	=	=	=
55100500	STORM SEWER REM 12	FOOT	664.000 X	=	=	=	=
55100700	STORM SEWER REM 15	FOOT	238.000 X	=	=	=	=
55100900	STORM SEWER REM 18	FOOT	26.000 X	=	=	=	=
55102300	STORM SEWER REM 72	FOOT	63.000 X	=	=	=	=
56104400	WATER VALVES 1	EACH	23.000 X	=	=	=	=
56104445	WATER VALVES 1 1/4	EACH	4.000 X	=	=	=	=
56104500	WATER VALVES 1 1/2	EACH	8.000 X	=	=	=	=
56104600	WATER VALVES 2	EACH	15.000 X	=	=	=	=
56104800	WATER VALVES 4	EACH	11.000 X	=	=	=	=
56104900	WATER VALVES 6	EACH	15.000 X	=	=	=	=
56105000	WATER VALVES 8	EACH	11.000 X	=	=	=	=
56105200	WATER VALVES 12	EACH	18.000 X	=	=	=	=
56108800	TAP VALVE & SLEEVE 6	EACH	7.000 X	=	=	=	=

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
56200300	WATER SERV LINE 1	FOOT	2,802.000 X	=	=	=	=
56200400	WATER SERV LINE 1 1/4	FOOT	163.000 X	=	=	=	=
56200500	WATER SERV LINE 1 1/2	FOOT	304.000 X	=	=	=	=
56200700	WATER SERV LINE 2	FOOT	439.000 X	=	=	=	=
56201400	CORP STOPS 1	EACH	23.000 X	=	=	=	=
56201500	CORP STOPS 1 1/4	EACH	4.000 X	=	=	=	=
56201600	CORP STOPS 1 1/2	EACH	8.000 X	=	=	=	=
56201800	CORP STOPS 2	EACH	15.000 X	=	=	=	=
56400500	FIRE HYDNTS TO BE REM	EACH	11.000 X	=	=	=	=
56400600	FIRE HYDRANTS	EACH	10.000 X	=	=	=	=
56500500	DOM MET VLTS	EACH	6.000 X	=	=	=	=
59000200	EPOXY CRACK INJECTION	FOOT	200.000 X	=	=	=	=
60108200	PIPE UNDERDRAIN 6 SP	FOOT	5,107.000 X	=	=	=	=
60218300	MAN TA 4 DIA T1F OL	EACH	3.000 X	=	=	=	=
60218400	MAN TA 4 DIA T1F CL	EACH	2.000 X	=	=	=	=

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
60218500	MAN TA 4 DIA T3F&G	EACH	7.000 X	=	=	=	=
60219300	MAN TA 4 DIA T11F&G	EACH	5.000 X	=	=	=	=
60219570	MAN TA 4 DIA T3V F&G	EACH	33.000 X	=	=	=	=
60221000	MAN TA 5 DIA T1F OL	EACH	9.000 X	=	=	=	=
60221100	MAN TA 5 DIA T1F CL	EACH	4.000 X	=	=	=	=
60221200	MAN TA 5 DIA T3F&G	EACH	4.000 X	=	=	=	=
60221700	MAN TA 5 DIA T8G	EACH	1.000 X	=	=	=	=
60222270	MAN TA 5 DIA T3V F&G	EACH	8.000 X	=	=	=	=
60223700	MAN TA 6 DIA T1F OL	EACH	2.000 X	=	=	=	=
60223810	MAN TA 6 DIA T3F&G	EACH	1.000 X	=	=	=	=
60224129	MAN TA 7 DIA T3V F&G	EACH	2.000 X	=	=	=	=
60234200	INLETS TA T1F OL	EACH	1.000 X	=	=	=	=
60235700	INLETS TA T3F&G	EACH	16.000 X	=	=	=	=
60236200	INLETS TA T8G	EACH	7.000 X	=	=	=	=
60236800	INLETS TA T11F&G	EACH	6.000 X	=	=	=	=

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
60240215	INLETS TB T1F CL	EACH	5.000 X	=	-	=	-
60240220	INLETS TB T3F&G	EACH	15.000 X	=	-	=	-
60240310	INLETS TB T11F&G	EACH	5.000 X	=	-	=	-
60255500	MAN ADJUST	EACH	9.000 X	=	-	=	-
60255700	MAN ADJ NEW T1F OL	EACH	1.000 X	=	-	=	-
60255905	MAN ADJ NEW T3V F&G	EACH	1.000 X	=	-	=	-
60258200	MAN RECON NEW T1F CL	EACH	1.000 X	=	-	=	-
60258300	MAN RECON NEW T3F&G	EACH	2.000 X	=	-	=	-
60260100	INLETS ADJUST	EACH	3.000 X	=	-	=	-
60260500	INLETS ADJ NEW T3F&G	EACH	1.000 X	=	-	=	-
60260505	INLETS ADJ NEW T3VF&G	EACH	1.000 X	=	-	=	-
60261000	INLETS ADJ NEW T8G	EACH	1.000 X	=	-	=	-
60500040	REMOV MANHOLES	EACH	25.000 X	=	-	=	-
60500060	REMOV INLETS	EACH	40.000 X	=	-	=	-
60500105	FILL MANHOLES	EACH	1.000 X	=	-	=	-

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CENTS
60603800	COMB CC&G TB6.12	FOOT	1,181.000 X	=		=	
60604400	COMB CC&G TB6.18	FOOT	11,297.000 X	=		=	
61100605	MISC CONCRETE	CU YD	4.000 X	=		=	
66900200	NON SPL WASTE DISPOS	CU YD	524.000 X	=		=	
66900450	SPL WASTE PLNS/REPORT	L SUM	1.000 X	=		=	
66900530	SOIL DISPOSAL ANALY	EACH	4.000 X	=		=	
67000400	ENGR FIELD OFFICE A	CAL MO	18.000 X	=		=	
67100100	MOBILIZATION	L SUM	1.000 X	=		=	
70300150	SHRT TRM PAVT MK REM	SQ FT	3,401.000 X	=		=	
70300510	PAVT MARK TAPE T3 L&S	SQ FT	215.000 X	=		=	
70300520	PAVT MARK TAPE T3 4	FOOT	6,384.000 X	=		=	
70300540	PAVT MARK TAPE T3 6	FOOT	610.000 X	=		=	
70300570	PAVT MARK TAPE T3 24	FOOT	388.000 X	=		=	
70800105	TEMP WAT FILL BARRIER	FOOT	580.000 X	=		=	
72000100	SIGN PANEL T1	SQ FT	110.000 X	=		=	

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
72000200	SIGN PANEL T2	SQ FT	26.000 X				
72900200	METAL POST TY B	FOOT	632.000 X				
78000100	THPL PVT MK LTR & SYM	SQ FT	53.000 X				
78000200	THPL PVT MK LINE 4	FOOT	4,076.000 X				
78000400	THPL PVT MK LINE 6	FOOT	657.000 X				
78000600	THPL PVT MK LINE 12	FOOT	595.000 X				
78000650	THPL PVT MK LINE 24	FOOT	41.000 X				
78006100	PREF THPL PM LTR-SYM	SQ FT	3,944.000 X				
78009000	MOD URETH PM LTR-SYM	SQ FT	280.000 X				
78009004	MOD URETH PM LINE 4	FOOT	7,968.000 X				
78009006	MOD URETH PM LINE 6	FOOT	2,367.000 X				
78009012	MOD URETH PM LINE 12	FOOT	3,350.000 X				
78009024	MOD URETH PM LINE 24	FOOT	384.000 X				
81028350	UNDRGRD C PVC 2	FOOT	27,327.000 X				
81028360	UNDRGRD C PVC 2 1/2	FOOT	75.000 X				

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
81028370	UNDRGRD C PVC 3	FOOT	855.000 X	=	=	=	=
81028390	UNDRGRD C PVC 4	FOOT	170.000 X	=	=	=	=
81028400	UNDRGRD C PVC 5	FOOT	272.000 X	=	=	=	=
81100300	CON AT ST 1 GALVS	FOOT	226.000 X	=	=	=	=
81300550	JUN BX SS AS 12X12X6	EACH	4.000 X	=	=	=	=
81400700	HANDHOLE PCC	EACH	14.000 X	=	=	=	=
81400720	DBL HANDHOLE PCC	EACH	2.000 X	=	=	=	=
81500120	GULFBOX JUNCTION CC	EACH	19.000 X	=	=	=	=
81702120	EC C XLP USE 1C 8	FOOT	32,411.000 X	=	=	=	=
81702130	EC C XLP USE 1C 6	FOOT	84,027.000 X	=	=	=	=
81702140	EC C XLP USE 1C 4	FOOT	5,094.000 X	=	=	=	=
81702145	EC C XLP USE 1C 3	FOOT	256.000 X	=	=	=	=
81702170	EC C XLP USE 1C 2/0	FOOT	5,948.000 X	=	=	=	=
81702180	EC C XLP USE 1C 3/0	FOOT	831.000 X	=	=	=	=
81702190	EC C XLP USE 1C 4/0	FOOT	648.000 X	=	=	=	=

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
81702220	EC C XLP USE 1C 350	FOOT	1,487.000 X	=	=	=	=
83600200	LIGHT POLE FDN 24D	FOOT	536.000 X	=	=	=	=
84200500	REM LT UNIT SALV	EACH	9.000 X	=	=	=	=
84200600	REM LT U NO SALV	EACH	38.000 X	=	=	=	=
84200804	REM POLE FDN	EACH	15.000 X	=	=	=	=
84500120	REMOV ELECT SERV INST	EACH	1.000 X	=	=	=	=
87100020	F0CC62.5/125 MM12SM12	FOOT	3,130.000 X	=	=	=	=
87301215	ELCBL C SIGNAL 14 2C	FOOT	2,565.000 X	=	=	=	=
87301225	ELCBL C SIGNAL 14 3C	FOOT	5,300.000 X	=	=	=	=
87301245	ELCBL C SIGNAL 14 5C	FOOT	3,920.000 X	=	=	=	=
87301255	ELCBL C SIGNAL 14 7C	FOOT	1,890.000 X	=	=	=	=
87301900	ELCBL C EGRDC 6 1C	FOOT	1,290.000 X	=	=	=	=
87502680	TS POST A 14	EACH	4.000 X	=	=	=	=
87600200	PED PUSH-BUT POST T2	EACH	12.000 X	=	=	=	=
87702880	STL COMB MAA&P 30	EACH	4.000 X	=	=	=	=

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
87702890	STL COMB MAA&P 32	EACH	4.000 X				
87800100	CONC FDN TY A	FOOT	20.000 X				
87800200	CONC FDN TY D	FOOT	8.000 X				
87800400	CONC FDN TY E 30D	FOOT	111.000 X				
87900200	DRILL EX HANDHOLE	EACH	2.000 X				
88040070	SH P LED 1F 3S BM	EACH	12.000 X				
88040090	SH P LED 1F 3S MAM	EACH	8.000 X				
88040150	SH P LED 1F 5S BM	EACH	4.000 X				
88040160	SH P LED 1F 5S MAM	EACH	4.000 X				
88102825	PED SH P LED 1F BM CT	EACH	16.000 X				
88200100	TS BACKPLATE	EACH	12.000 X				
88700090	CONFIRMATION BEACON	EACH	8.000 X				
89500100	RELOC EX SIG HEAD	EACH	2.000 X				
89500200	RELOC EX PED SIG HEAD	EACH	1.000 X				
89501150	RELOC EX TS POST	EACH	1.000 X				

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
89502380	REMOV EX HANDHOLE	EACH	5.000 X		=		
89502385	REMOV EX CONC FDN	EACH	7.000 X		=		
				TOTAL \$			

- NOTE:
1. EACH PAY ITEM SHOULD HAVE A UNIT PRICE AND A TOTAL PRICE.
 2. THE UNIT PRICE SHALL GOVERN IF NO TOTAL PRICE IS SHOWN OR IF THERE IS A DISCREPANCY BETWEEN THE PRODUCT OF THE UNIT PRICE MULTIPLIED BY THE QUANTITY.
 3. IF A UNIT PRICE IS OMITTED, THE TOTAL PRICE WILL BE DIVIDED BY THE QUANTITY IN ORDER TO ESTABLISH A UNIT PRICE.
 4. A BID MAY BE DECLARED UNACCEPTABLE IF NEITHER A UNIT PRICE NOR A TOTAL PRICE IS SHOWN.

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STATE REQUIRED ETHICAL STANDARDS GOVERNING CONTRACT PROCUREMENT: ASSURANCES, CERTIFICATIONS AND DISCLOSURES

I. GENERAL

A. Article 50 of the Code establishes the duty of all State CPOs, SPOs, and their designees to maximize the value of the expenditure of public moneys in procuring goods, services, and contracts for the State of Illinois and to act in a manner that maintains the integrity and public trust of State government. In discharging this duty, they are charged by law to use all available information, reasonable efforts, and reasonable actions to protect, safeguard, and maintain the procurement process of the State of Illinois.

B. In order to comply with the provisions of Article 50 and to carry out the duty established therein, all bidders are to adhere to ethical standards established for the procurement process, and to make such assurances, disclosures and certifications required by law. Except as otherwise required in subsection III, paragraphs J-M, by execution of the Proposal Signature Sheet, the bidder indicates that each of the mandated assurances have been read and understood, that each certification is made and understood, and that each disclosure requirement has been understood and completed.

C. In addition to all other remedies provided by law, failure to comply with any assurance, failure to make any disclosure or the making of a false certification shall be grounds for the CPO to void the contract, and may result in the suspension or debarment of the bidder or subcontractor. If a false certification is made by a subcontractor the contractor's submitted bid and the executed contract may not be declared void unless the contractor refuses to terminate the subcontract upon the State's request after a finding that the subcontractor's certification was false.

I acknowledge, understand and accept these terms and conditions.

II. ASSURANCES

The assurances hereinafter made by the bidder are each a material representation of fact upon which reliance is placed should the Department enter into the contract with the bidder.

A. Conflicts of Interest

Section 50-13. Conflicts of Interest.

(a) Prohibition. It is unlawful for any person holding an elective office in this State, holding a seat in the General Assembly, or appointed to or employed in any of the offices or agencies of state government and who receives compensation for such employment in excess of 60% of the salary of the Governor of the State of Illinois, or who is an officer or employee of the Capital Development Board or the Illinois State Toll Highway Authority, or who is the spouse or minor child of any such person to have or acquire any contract, or any direct pecuniary interest in any contract therein, whether for stationery, printing, paper, or any services, materials, or supplies, that will be wholly or partially satisfied by the payment of funds appropriated by the General Assembly of the State of Illinois or in any contract of the Capital Development Board or the Illinois State Toll Highway Authority.

(b) Interests. It is unlawful for any firm, partnership, association or corporation, in which any person listed in subsection (a) is entitled to receive (i) more than 7 1/2% of the total distributable income or (ii) an amount in excess of the salary of the Governor, to have or acquire any such contract or direct pecuniary interest therein.

(c) Combined interests. It is unlawful for any firm, partnership, association, or corporation, in which any person listed in subsection (a) together with his or her spouse or minor children is entitled to receive (i) more than 15%, in the aggregate, of the total distributable income or (ii) an amount in excess of 2 times the salary of the Governor, to have or acquire any such contract or direct pecuniary interest therein.

(d) Securities. Nothing in this Section invalidates the provisions of any bond or other security previously offered or to be offered for sale or sold by or for the State of Illinois.

(e) Prior interests. This Section does not affect the validity of any contract made between the State and an officer or employee of the State or member of the General Assembly, his or her spouse, minor child or any combination of those persons if that contract was in existence before his or her election or employment as an officer, member, or employee. The contract is voidable, however, if it cannot be completed within 365 calendar days after the officer, member, or employee takes office or is employed. The current salary of the Governor is \$177,412.00. Sixty percent of the salary is \$106,447.20.

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The bidder assures the Department that the award and execution of the contract would not cause a violation of Section 50-13, or that an effective exemption has been issued by the Board of Ethics to any individual subject to the Section 50-13 prohibitions pursuant to the provisions of Section 50-20 of the Code. Information concerning the exemption process is available from the Department upon request.

B. Negotiations

Section 50-15. Negotiations.

It is unlawful for any person employed in or on a continual contractual relationship with any of the offices or agencies of State government to participate in contract negotiations on behalf of that office or agency with any firm, partnership, association, or corporation with whom that person has a contract for future employment or is negotiating concerning possible future employment.

The bidder assures the Department that the award and execution of the contract would not cause a violation of Section 50-15, and that the bidder has no knowledge of any facts relevant to the kinds of acts prohibited therein.

C. Inducements

Section 50-25. Inducement.

Any person who offers or pays any money or other valuable thing to any person to induce him or her not to provide a submission to a vendor portal or to bid for a State contract or as recompense for not having bid on a State contract is guilty of a Class 4 felony. Any person who accepts any money or other valuable thing for not bidding for a State contract, not making a submission to a vendor portal, or who withholds a bid or submission to a vendor portal in consideration of the promise for the payment of money or other valuable thing is guilty of a Class 4 felony.

The bidder assures the Department that the award and execution of the contract would not cause a violation of Section 50-25, and that the bidder has no knowledge of any facts relevant to the kinds of acts prohibited therein.

D. Revolving Door Prohibition

Section 50-30. Revolving door prohibition.

CPOs, SPOs, procurement compliance monitors, their designees whose principal duties are directly related to State procurement, and executive officers confirmed by the Senate are expressly prohibited for a period of 2 years after terminating an affected position from engaging in any procurement activity relating to the State agency most recently employing them in an affected position for a period of at least 6 months. The prohibition includes, but is not limited to: lobbying the procurement process; specifying; bidding; proposing bid, proposal, or contract documents; on their own behalf or on behalf of any firm, partnership, association, or corporation. This Section applies only to persons who terminate an affected position on or after January 15, 1999.

The bidder assures the Department that the award and execution of the contract would not cause a violation of Section 50-30, and that the bidder has no knowledge of any facts relevant to the kinds of acts prohibited therein.

E. Reporting Anticompetitive Practices

Section 50-40. Reporting anticompetitive practices.

When, for any reason, any vendor, bidder, contractor, CPO, SPO, designee, elected official, or State employee suspects collusion or other anticompetitive practice among any bidders, offerors, contractors, proposers, or employees of the State, a notice of the relevant facts shall be transmitted to the Attorney General and the CPO.

The bidder assures the Department that it has not failed to report any relevant facts concerning the practices addressed in Section 50-40 which may involve the contract for which the bid or submission to a vendor portal is submitted.

F. Confidentiality

Section 50-45. Confidentiality.

Any CPO, SPO, designee, or executive officer who willfully uses or allows the use of specifications, competitive bid documents, proprietary competitive information, proposals, contracts, or selection information to compromise the fairness or integrity of the procurement, bidding, or contract process shall be subject to immediate dismissal, regardless of the Personnel code, any contract, or any collective bargaining agreement, and may in addition be subject to criminal prosecution.

The bidder assures the Department that it has no knowledge of any fact relevant to the practices addressed in Section 50-45 which may involve the contract for which the bid is submitted.

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G. Insider Information

Section 50-50. Insider information.

It is unlawful for any current or former elected or appointed State official or State employee to knowingly use confidential information available only by virtue of that office or employment for actual or anticipated gain for themselves or another person.

The bidder assures the Department that it has no knowledge of any facts relevant to the practices addressed in Section 50-50 which may involve the contract for which the bid is submitted.

I acknowledge, understand and accept these terms and conditions for the above assurances.

III. CERTIFICATIONS

The certifications hereinafter made by the bidder are each a material representation of fact upon which reliance is placed should the Department enter into the contract with the bidder. Section 50-2 of the Code provides that every person that has entered into a multi-year contract and every subcontractor with a multi-year subcontract shall certify, by July 1 of each fiscal year covered by the contract after the initial fiscal year, to the responsible CPO whether it continues to satisfy the requirements of Article 50 pertaining to the eligibility for a contract award. If a contractor or subcontractor is not able to truthfully certify that it continues to meet all requirements, it shall provide with its certification a detailed explanation of the circumstances leading to the change in certification status. A contractor or subcontractor that makes a false statement material to any given certification required under Article 50 is, in addition to any other penalties or consequences prescribed by law, subject to liability under the Whistleblower Reward and Protection Act for submission of a false claim.

A. Bribery

Section 50-5. Bribery.

(a) Prohibition. No person or business shall be awarded a contract or subcontract under this Code who:

(1) has been convicted under the laws of Illinois or any other state of bribery or attempting to bribe an officer or employee of the State of Illinois or any other state in that officer's or employee's official capacity; or

(2) has made an admission of guilt of that conduct that is a matter of record but has not been prosecuted for that conduct.

(b) Businesses. No business shall be barred from contracting with any unit of State or local government, or subcontracting under such a contract, as a result of a conviction under this Section of any employee or agent of the business if the employee or agent is no longer employed by the business and:

(1) the business has been finally adjudicated not guilty; or

(2) the business demonstrates to the governmental entity with which it seeks to contract, or which is signatory to the contract which the subcontract relates, and that entity finds that the commission of the offense was not authorized, requested, commanded, or performed by a director, officer, or high managerial agent on behalf of the business as provided in paragraph (2) of subsection (a) of Section 5-4 of the Criminal Code of 2012.

(c) Conduct on behalf of business. For purposes of this Section, when an official, agent, or employee of a business committed the bribery or attempted bribery on behalf of the business and in accordance with the direction or authorization of a responsible official of the business, the business shall be chargeable with the conduct.

(d) Certification. Every bid submitted to and contract executed by the State, and every subcontract subject to Section 20-120 of the Code shall contain a certification by the contractor or the subcontractor, respectively, that the contractor or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the CPO may declare the related contract void if any certifications required by this Section are false. A contractor who makes a false statement, material to the certification, commits a Class 3 felony.

The contractor or subcontractor certifies that it is not barred from being awarded a contract under Section 50-5.

B. Felons

Section 50-10. Felons.

(a) Unless otherwise provided, no person or business convicted of a felony shall do business with the State of Illinois or any State agency, or enter into a subcontract, from the date of conviction until 5 years after the date of completion of the sentence for that felony, unless no person held responsible by a prosecutorial office for the facts upon which the conviction was based continues to have any involvement with the business.

(b) Certification. Every bid submitted to and contract executed by the State and every subcontract subject to Section 20-120 of the Code and every vendor's submission to a vendor portal shall contain a certification by the bidder or contractor or subcontractor, respectively, that the bidder, contractor, or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the CPO may declare the related contract void if any of the certifications required by this Section are false.

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C. Debt Delinquency

Section 50-11 and 50-12. Debt Delinquency.

The contractor or bidder or subcontractor, respectively, certifies that it, or any affiliate, is not barred from being awarded a contract or subcontract under the Code. Section 50-11 prohibits a person from entering into a contract with a State agency, or entering into a subcontract, if it knows or should know that it, or any affiliate, is delinquent in the payment of any debt to the State as defined by the Debt Collection Board. Section 50-12 prohibits a person from entering into a contract with a State agency, or entering into a subcontract, if it, or any affiliate, has failed to collect and remit Illinois Use Tax on all sales of tangible personal property into the State of Illinois in accordance with the provisions of the Illinois Use Tax Act. The bidder or contractor or subcontractor, respectively, further acknowledges that the CPO may declare the related contract void if this certification is false or if the bidder, contractor, or subcontractor, or any affiliate, is determined to be delinquent in the payment of any debt to the State during the term of the contract.

D. Prohibited Bidders, Contractors and Subcontractors

Section 50-10.5 and 50-60(c). Prohibited bidders, contractors and subcontractors.

The bidder or contractor or subcontractor, respectively, certifies in accordance with Section 50-10.5 that no officer, director, partner or other managerial agent of the contracting business has been convicted of a felony under the Sarbanes-Oxley Act of 2002 or a Class 3 or Class 2 felony under the Illinois Securities Law of 1953 or if in violation of Subsection (c) for a period of five years from the date of conviction. Every bid submitted to and contract executed by the State and every subcontract subject to Section 20-120 of the Code shall contain a certification by the bidder, contractor, or subcontractor, respectively, that the bidder, contractor, or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the CPO shall declare the related contract void if any of the certifications completed pursuant to this Section are false.

E. Section 42 of the Environmental Protection Act

Section 50-14 Environmental Protection Act violations.

The bidder or contractor or subcontractor, respectively, certifies in accordance with Section 50-14 that the bidder, contractor, or subcontractor, is not barred from being awarded a contract or entering into a subcontract under this Section which prohibits the bidding on or entering into contracts with the State of Illinois or a State agency, or entering into any subcontract, that is subject to the Code by a person or business found by a court or the Pollution Control Board to have committed a willful or knowing violation of Section 42 of the Environmental Protection Act for a period of five years from the date of the order. The bidder or contractor or subcontractor, respectively, acknowledges that the CPO may declare the contract void if this certification is false.

F. Educational Loan

Section 3 of the Educational Loan Default Act, 5 ILCS 385/3.

Pursuant to the Educational Loan Default Act no State agency shall contract with an individual for goods or services if that individual is in default on an educational loan.

The bidder, if an individual as opposed to a corporation, partnership or other form of business organization, certifies that the bidder is not in default on an educational loan as provided in Section 3 of the Act.

G. Bid-Rigging/Bid Rotating

Section 33E-11 of the Criminal Code of 2012, 720 ILCS 5/3BE-11.

(a) Every bid submitted to and public contract executed pursuant to such bid by the State or a unit of local government shall contain a certification by the prime contractor that the prime contractor is not barred from contracting with any unit of State or local government as a result of a violation of either Section 33E-3 or 33E-4 of this Article.

(b) A contractor who makes a false statement, material to the certification, commits a Class 3 felony.

A violation of Section 33E-3 would be represented by a conviction of the crime of bid-rigging which, in addition to Class 3 felony sentencing, provides that any person convicted of this offense or any similar offense of any state or the United States which contains the same elements as this offense shall be barred for 5 years from the date of conviction from contracting with any unit of State or local government. No corporation shall be barred from contracting with any unit of State or local government as a result of a conviction under this Section of any employee or agent of such corporation if the employee so convicted is no longer employed by the corporation and: (1) it has been finally adjudicated not guilty or (2) if it demonstrates to the governmental entity with which it seeks to contract and that entity finds that the commission of the offense was neither authorized, requested, commanded, nor performed by a director, officer or a high managerial agent in behalf of the corporation.

The bidder certifies that it is not barred from contracting with the Department by reason of a violation of either Section 33E-3 or Section 33E-4.

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H. International Anti-Boycott

Section 5 of the International Anti-Boycott Certification Act provides every contract entered into by the State of Illinois for the manufacture, furnishing, or purchasing of supplies, material, or equipment or for the furnishing of work, labor, or services, in an amount exceeding the threshold for small purchases according to the purchasing laws of this State or \$10,000.00, whichever is less, shall contain certification, as a material condition of the contract, by which the contractor agrees that neither the contractor nor any substantially-owned affiliated company is participating or shall participate in an international boycott in violation of the provisions of the U.S. Export Administration Act of 1979 or the regulations of the U.S. Department of Commerce promulgated under that Act.

The bidder makes the certification set forth in Section 5 of the Act.

I. Drug Free Workplace

The Illinois "Drug Free Workplace Act" applies to this contract and it is necessary to comply with the provisions of the "Act" if the contractor is a corporation, partnership, or other entity (including a sole proprietorship) which has 25 or more employees.

The bidder certifies that if awarded a contract in excess of \$5,000 it will provide a drug free workplace in compliance with the provisions of the Act.

J. Disclosure of Business Operations in Iran

Section 50-36 of the Code provides that each bid, offer, or proposal submitted for a State contract shall include a disclosure of whether or not the Company acting as the bidder, offeror, or proposing entity, or any of its corporate parents or subsidiaries, within the 24 months before submission of the bid, offer, or proposal had business operations that involved contracts with or provision of supplies or services to the Government of Iran, companies in which the Government of Iran has any direct or indirect equity share, consortiums or projects commissioned by the Government of Iran, or companies involved in consortiums or projects commissioned by the Government of Iran and either of the following conditions apply:

- (1) More than 10% of the Company's revenues produced in or assets located in Iran involve oil-related activities or mineral-extraction activities; less than 75% of the Company's revenues produced in or assets located in Iran involve contracts with or provision of oil-related or mineral-extraction products or services to the Government of Iran or a project or consortium created exclusively by that government; and the Company has failed to take substantial action.
- (2) The Company has, on or after August 5, 1996, made an investment of \$20 million or more, or any combination of investments of at least \$10 million each that in the aggregate equals or exceeds \$20 million in any 12-month period, which directly or significantly contributes to the enhancement of Iran's ability to develop petroleum resources of Iran.

The terms "Business operations", "Company", "Mineral-extraction activities", "Oil-related activities", "Petroleum resources", and "Substantial action" are all defined in the Code.

Failure to make the disclosure required by the Code may cause the bid, offer or proposal to be considered not responsive. The disclosure will be considered when evaluating the bid or awarding the contract. The name of each Company disclosed as doing business or having done business in Iran will be provided to the State Comptroller.

Check the appropriate statement:

Company has no business operations in Iran to disclose.

Company has business operations in Iran as disclosed on the attached document.

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K. Apprenticeship and Training Certification (Does not apply to federal aid projects)

In accordance with the provisions of Section 30-22 (6) of the Code, the bidder certifies that it is a participant, either as an individual or as part of a group program, in the approved apprenticeship and training programs applicable to each type of work or craft that the bidder will perform with its own forces. The bidder further certifies for work that will be performed by subcontract that each of its subcontractors submitted for approval either (a) is, at the time of such bid, participating in an approved, applicable apprenticeship and training program; or (b) will, prior to commencement of performance of work pursuant to this contract, begin participation in an approved apprenticeship and training program applicable to the work of the subcontract. The Department, at any time before or after award, may require the production of a copy of each applicable Certificate of Registration issued by the United States Department of Labor evidencing such participation by the contractor and any or all of its subcontractors. Applicable apprenticeship and training programs are those that have been approved and registered with the United States Department of Labor. The bidder shall list in the space below, the official name of the program sponsor holding the Certificate of Registration for all of the types of work or crafts in which the bidder is a participant and that will be performed with the bidder's forces. Types of work or craft work that will be subcontracted shall be included and listed as subcontract work. The list shall also indicate any type of work or craft job category that does not have an applicable apprenticeship or training program. **The bidder is responsible for making a complete report and shall make certain that each type of work or craft job category that will be utilized on the project as reported on the Construction Employee Workforce Projection (Form BC-1256) and returned with the bid is accounted for and listed.**

Additionally, Section 30-22 of the Code requires that the bidder certify that an Illinois office be maintained as the primary place of employment for persons employed for this contract.

NA-FEDERAL

The requirements of these certifications and disclosures are a material part of the contract, and the contractor shall require these certification provisions to be included in all approved subcontracts. In order to fulfill this requirement, it shall not be necessary that an applicable program sponsor be currently taking, or that it will take applications for apprenticeship, training or employment during the performance of the work of this contract.

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L. Political Contributions and Registration with the State Board of Elections

Sections 20-160 and 50-37 of the Code regulate political contributions from business entities and any affiliated entities or affiliated persons bidding on or contracting with the state. Generally under Section 50-37, any business entity, and any affiliated entity or affiliated person of the business entity, whose current year contracts with all state agencies exceed an awarded value of \$50,000, are prohibited from making any contributions to any political committees established to promote the candidacy of the officeholder responsible for the awarding of the contracts or any other declared candidate for that office for the duration of the term of office of the incumbent officeholder or a period 2 years after the termination of the contract, whichever is longer. Any business entity and affiliated entities or affiliated persons whose state contracts in the current year do not exceed an awarded value of \$50,000, but whose aggregate pending bids and proposals on state contracts exceed \$50,000, either alone or in combination with contracts not exceeding \$50,000, are prohibited from making any political contributions to any political committee established to promote the candidacy of the officeholder responsible for awarding the pending contract during the period beginning on the date the invitation for bids or request for proposals or any other procurement opportunity is issued and ending on the day after the date of award or selection if the entity was not awarded or selected. Section 20-160 requires certification of registration of affected business entities in accordance with procedures found in Section 9-35 of The Election Code.

By submission of a bid, the contractor business entity acknowledges and agrees that it has read and understands Sections 20-160 and 50-37 of the Code, and that it makes the following certification:

The undersigned bidder certifies that it has registered as a business with the State Board of Elections and acknowledges a continuing duty to update the registration in accordance with the above referenced statutes. If the business entity is required to register, the CPO shall verify that it is in compliance on the date the bid or proposal is due. The CPO shall not accept a bid or proposal if the business entity is not in compliance with the registration requirements.

These requirements and compliance with the above referenced statutory sections are a material part of the contract, and any breach thereof shall be cause to void the contract under Section 50-60 of the Code. This provision does not apply to Federal-aid contracts.

M. Lobbyist Disclosure

Section 50-38 of the Code requires that any bidder or offeror on a State contract that hires a person required to register under the Lobbyist Registration Act to assist in obtaining a contract shall:

- (i) Disclose all costs, fees, compensation, reimbursements, and other remunerations paid or to be paid to the lobbyist related to the contract,
- (ii) Not bill or otherwise cause the State of Illinois to pay for any of the lobbyist's costs, fees, compensation, reimbursements, or other remuneration, and
- (iii) Sign a verification certifying that none of the lobbyist's costs, fees, compensation, reimbursements, or other remuneration were billed to the State.

This information, along with all supporting documents, shall be filed with the agency awarding the contract and with the Secretary of State. The CPO shall post this information, together with the contract award notice, in the online Procurement Bulletin.

Pursuant to Subsection (c) of this Section, no person or entity shall retain a person or entity to attempt to influence the outcome of a procurement decision made under the Code for compensation contingent in whole or in part upon the decision or procurement. Any person who violates this subsection is guilty of a business offense and shall be fined not more than \$10,000.

Bidder acknowledges that it is required to disclose the hiring of any person required to register pursuant to the Illinois Lobbyist Registration Act (25 ILCS 170) in connection with this contract.

Bidder has not hired any person required to register pursuant to the Illinois Lobbyist Registration Act in connection with this contract.

Or

Bidder has hired the following persons required to register pursuant to the Illinois Lobbyist Registration Act in connection with the contract:

Name and address of person: _____
All costs, fees, compensation, reimbursements and other remuneration paid to said person: _____

I acknowledge, understand and accept these terms and conditions for the above certifications.

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IV. DISCLOSURES

- A. The disclosures hereinafter made by the bidder are each a material representation of fact upon which reliance is placed should the Department enter into the contract with the bidder. The bidder further certifies that the Department has received the disclosure forms for each bid.

The CPO may void the bid, or contract, respectively, if it is later determined that the bidder or subcontractor rendered a false or erroneous disclosure. A contractor or subcontractor may be suspended or debarred for violations of the Code. Furthermore, the CPO may void the contract and the surety providing the performance bond shall be responsible for completion of the contract.

B. Financial Interests and Conflicts of Interest

1. Section 50-35 of the Code provides that all bids of more than \$50,000 and all submissions to a vendor portal shall be accompanied by disclosure of the financial interests of the bidder. This disclosed information for the successful bidder, will be maintained as public information subject to release by request pursuant to the Freedom of Information Act, filed with the Procurement Policy Board, and shall be incorporated as a material term of the contract. Furthermore, pursuant to Section 5-5, the Procurement Policy Board may review a proposal, bid, or contract and issue a recommendation to void a contract or reject a proposal or bid based on any violation of the Code or the existence of a conflict of interest as provided in subsections (b) and (d) of Section 50-35.

The financial interests to be disclosed shall include ownership or distributive income share that is in excess of 5%, or an amount greater than 60% of the annual salary of the Governor, of the bidding entity or its parent entity, whichever is less, unless the contractor or bidder is a publicly traded entity subject to Federal 10K reporting, in which case it may submit its 10K disclosure in place of the prescribed disclosure. If a bidder is a privately held entity that is exempt from Federal 10K reporting, but has more than 100 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any individual or entity holding any ownership share that is in excess of 5%. The disclosure shall include the names, addresses, and dollar or proportionate share of ownership of each individual making the disclosure, their instrument of ownership or beneficial relationship, and notice of any potential conflict of interest resulting from the current ownership or beneficial interest of each individual making the disclosure having any of the relationships identified in Section 50-35 and on the disclosure form.

The current annual salary of the Governor is \$177,412.00.

In addition, all disclosures shall indicate any other current or pending contracts, proposals, leases, or other ongoing procurement relationships the bidding entity has with any other unit of state government and shall clearly identify the unit and the contract, proposal, lease, or other relationship.

2. Disclosure Forms. Disclosure Form A is attached for use concerning the individuals meeting the above ownership or distributive share requirements. A separate Disclosure Form A must be submitted with the bid for each individual meeting the above requirements. In addition, a second form (Disclosure Form B) provides for the disclosure of current or pending procurement relationships with other (non-IDOT) state agencies and a total ownership certification. **The forms must be included with each bid.**

C. Disclosure Form Instructions

Form A Instructions for Financial Information & Potential Conflicts of Interest

If the bidder is a publicly traded entity subject to Federal 10K reporting, the 10K Report may be submitted to meet the requirements of Form A. If a bidder is a privately held entity that is exempt from Federal 10K reporting, but has more than 100 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any individual or entity holding any ownership share that is in excess of 5%. If a bidder is not subject to Federal 10K reporting, the bidder must determine if any individuals are required by law to complete a financial disclosure form. To do this, the bidder should answer each of the following questions. A "YES" answer indicates Form A must be completed. If the answer to each of the following questions is "NO", then the NOT APPLICABLE STATEMENT on Form A must be signed and dated by an individual that is authorized to execute contracts for the bidding company. Note: These questions are for assistance only and are not required to be completed.

1. Does anyone in your organization have a direct or beneficial ownership share of greater than 5% of the bidding entity or parent entity? YES ___ NO ___
2. Does anyone in your organization have a direct or beneficial ownership share of less than 5%, but which has a value greater than 60% of the annual salary of the Governor? YES ___ NO ___
3. Does anyone in your organization receive more than 60% of the annual salary of the Governor of the bidding entity's or parent entity's distributive income? YES ___ NO ___
4. Does anyone in your organization receive greater than 5% of the bidding entity's or parent entity's total distributive income, but which is less than 60% of the annual salary of the Governor? YES ___ NO ___

(Note: Only one set of forms needs to be completed per individual per bid even if a specific individual would require a yes answer to more than one question.)

A "YES" answer to any of these questions requires the completion of Form A. The bidder must determine each individual in the bidding entity or the bidding entity's parent company that would cause the questions to be answered "Yes". Each form must be signed and dated by an individual that is authorized to execute contracts for your organization. The individual signing can be, but does not have to be, the individual for which the form is being completed. The bidder is responsible for the accuracy of any information provided.

If the answer to each of the above questions is "NO", then the NOT APPLICABLE STATEMENT of Form A must be signed and dated by an individual that is authorized to execute contracts for your company.

RETURN WITH BID

Form B: Instructions for Identifying Other Contracts & Procurement Related Information

Disclosure Form B must be completed for each bid submitted by the bidding entity. *Note: Checking the NOT APPLICABLE STATEMENT on Form A does not allow the bidder to ignore Form B. Form B must be completed, checked, and dated or the bidder may be considered nonresponsive and the bid will not be accepted.*

The Bidder shall identify, by checking Yes or No on Form B, whether it has any pending contracts (including leases), bids, proposals, or other ongoing procurement relationship with any other (non-IDOT) State of Illinois agency. If "No" is checked, the bidder only needs to complete the check box on the bottom of Form B. If "Yes" is checked, the bidder must do one of the following:

Option I: If the bidder did not submit an Affidavit of Availability to obtain authorization to bid, the bidder must list all non-IDOT State of Illinois agency pending contracts, leases, bids, proposals, and other ongoing procurement relationships. These items may be listed on Form B or on an attached sheet(s). Do not include IDOT contracts. Contracts with cities, counties, villages, etc. are not considered State of Illinois agency contracts and are not to be included. Contracts with other State of Illinois agencies such as the Department of Natural Resources or the Capital Development Board must be included. Bidders who submit Affidavits of Availability are suggested to use Option II.

Option II: If the bidder is required and has submitted an Affidavit of Availability in order to obtain authorization to bid, the bidder may write or type "See Affidavit of Availability" which indicates that the Affidavit of Availability is incorporated by reference and includes all non-IDOT State of Illinois agency pending contracts, leases, bids, proposals, and other ongoing procurement relationships. For any contracts that are not covered by the Affidavit of Availability, the bidder must identify them on Form B or on an attached sheet(s). These might be such things as leases.

RETURN WITH BID

ILLINOIS DEPARTMENT OF TRANSPORTATION

Form A Financial Information & Potential Conflicts of Interest Disclosure

Contractor Name
Legal Address
City, State, Zip
Telephone Number Email Address Fax Number (if available)

Disclosure of the information contained in this Form is required by Section 50-35 of the Code (30 ILCS 500). Vendors desiring to enter into a contract with the State of Illinois must disclose the financial information and potential conflict of interest information as specified in this Disclosure Form. This information shall become part of the publicly available contract file. This Form A must be completed for bids in excess of \$50,000, and for all open-ended contracts. A publicly traded company may submit a 10K disclosure (or equivalent if applicable) in satisfaction of the requirements set forth in Form A. See Disclosure Form Instructions.

The current annual salary of the Governor is \$177,412.00.

DISCLOSURE OF FINANCIAL INFORMATION

- 1. Disclosure of Financial Information. The individual named below has an interest in the BIDDER (or its parent) in terms of ownership or distributive income share in excess of 5%, or an interest which has a value of more than 60% of the annual salary of the Governor. (Make copies of this form as necessary and attach a separate Disclosure Form A for each individual meeting these requirements)

FOR INDIVIDUAL (type or print information)
NAME:
ADDRESS
Type of ownership/distributable income share:
stock sole proprietorship Partnership other: (explain on separate sheet):
% or \$ value of ownership/distributable income share:

- 2. Disclosure of Potential Conflicts of Interest. Check "Yes" or "No" to indicate which, if any, of the following potential conflict of interest relationships apply. If the answer to any question is "Yes", please attach additional pages and describe.

(a) State employment, currently or in the previous 3 years, including contractual employment of services. Yes ___ No ___

If your answer is yes, please answer each of the following questions.

- 1. Are you currently an officer or employee of either the Capitol Development Board or the Illinois State Toll Highway Authority? Yes ___ No ___
2. Are you currently appointed to or employed by any agency of the State of Illinois? If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor provide the name the State agency for which you are employed and your annual salary.

RETURN WITH BID

3. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor, are you entitled to receive (i) more than 7 1/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of 100% of the annual salary of the Governor? Yes ___ No ___
4. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor, are you and your spouse or minor children entitled to receive (i) more than 15% in aggregate of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of two times the salary of the Governor? Yes ___ No ___

(b) State employment of spouse, father, mother, son, or daughter, including contractual employment for services in the previous 2 years.

Yes ___ No ___

If your answer is yes, please answer each of the following questions.

1. Is your spouse or any minor children currently an officer or employee of the Capitol Development Board or the Illinois State Toll Highway Authority? Yes ___ No ___
2. Is your spouse or any minor children currently appointed to or employed by any agency of the State of Illinois? If your spouse or minor children is/are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, provide the name of the spouse and/or minor children, the name of the State agency for which he/she is employed and his/her annual salary. _____
-
3. If your spouse or any minor children is/are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, are you entitled to receive (i) more than 7 1/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess 100% of the annual salary of the Governor? Yes ___ No ___
4. If your spouse or any minor children are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, are you and your spouse or any minor children entitled to receive (i) more than 15% in the aggregate of the total distributable income from your firm, partnership, association or corporation, or (ii) an amount in excess of two times the salary of the Governor? Yes ___ No ___

(c) Elective status; the holding of elective office of the State of Illinois, the government of the United States, any unit of local government authorized by the Constitution of the State of Illinois or the statutes of the State of Illinois currently or in the previous 3 years. Yes ___ No ___

(d) Relationship to anyone holding elective office currently or in the previous 2 years; spouse, father, mother, son, or daughter. Yes ___ No ___

(e) Appointive office; the holding of any appointive government office of the State of Illinois, the United State of America, or any unit of local government authorized by the Constitution of the State of Illinois or the statutes of the State of Illinois, which office entitles the holder to compensation in excess of the expenses incurred in the discharge of that office currently or in the previous 3 years. Yes ___ No ___

(f) Relationship to anyone holding appointive office currently or in the previous 2 years; spouse, father, mother, son, or daughter. Yes ___ No ___

(g) Employment, currently or in the previous 3 years, as or by any registered lobbyist of the State government. Yes ___ No ___

RETURN WITH BID

(h) Relationship to anyone who is or was a registered lobbyist in the previous 2 years; spouse, father, mother, son, or daughter. Yes ___ No ___

(i) Compensated employment, currently or in the previous 3 years, by any registered election or reelection committee registered with the Secretary of State or any county clerk of the State of Illinois, or any political action committee registered with either the Secretary of State or the Federal Board of Elections. Yes ___ No ___

(j) Relationship to anyone; spouse, father, mother, son, or daughter; who was a compensated employee in the last 2 years by any registered election or re-election committee registered with the Secretary of State or any county clerk of the State of Illinois, or any political action committee registered with either the Secretary of State or the Federal Board of Elections. Yes ___ No ___

3. Communication Disclosure.

Disclose the name and address of each lobbyist and other agent of the bidder or offeror who is not identified in Section 2 of this form, who is has communicated, is communicating, or may communicate with any State officer or employee concerning the bid or offer. This disclosure is a continuing obligation and must be promptly supplemented for accuracy throughout the process and throughout the term of the contract. If no person is identified, enter "None" on the line below:

Name and address of person(s): _____

RETURN WITH BID

4. Suspension or Debarment Disclosure. For each of the persons identified under Sections 2 and 3 of this form, disclose whether any of the following has occurred within the previous 10 years: suspension or debarment from contracting with any governmental entity; professional licensure discipline; bankruptcies; adverse civil judgments and administrative findings; and criminal felony convictions. This disclosure is a continuing obligation and must be promptly supplemented for accuracy throughout the procurement process and term of the contract. If no person is identified, enter "None" on the line below:

Name of person(s): _____

Nature of disclosure: _____

APPLICABLE STATEMENT

This Disclosure Form A is submitted on behalf of the INDIVIDUAL named on previous page. Under penalty of perjury, I certify the contents of this disclosure to be true and accurate to the best of my knowledge.

Completed by: _____ Date _____
Signature of Individual or Authorized Representative

NOT APPLICABLE STATEMENT

Under penalty of perjury, I have determined that no individuals associated with this organization meet the criteria that would require the completion of this Form A.

This Disclosure Form A is submitted on behalf of the CONTRACTOR listed on the previous page.

_____ Date _____
Signature of Authorized Representative

The bidder has a continuing obligation to supplement these disclosures under Sec. 50-35 of the Code.

RETURN WITH BID

ILLINOIS DEPARTMENT OF TRANSPORTATION

Form B Other Contracts & Financial Related Information Disclosure

Contractor Name, Legal Address, City, State, Zip, Telephone Number, Email Address, Fax Number (if available)

Disclosure of the information contained in this Form is required by Section 50-35 of the Code (30 ILCS 500). This information shall become part of the publicly available contract file. This Form B must be completed for all bids.

DISCLOSURE OF OTHER CONTRACTS AND PROCUREMENT RELATED INFORMATION

1. Identifying Other Contracts & Procurement Related Information. The BIDDER shall identify whether it has any pending contracts (including leases), bids, proposals, or other ongoing procurement relationship with any other State of Illinois agency: Yes ___ No ___ If "No" is checked, the bidder only needs to complete the signature box on this page.

2. If "Yes" is checked. Identify each such relationship by showing State of Illinois agency name and other descriptive information such as bid or project number (attach additional pages as necessary). SEE DISCLOSURE FORM INSTRUCTIONS:

THE FOLLOWING STATEMENT MUST BE CHECKED

Signature of Authorized Representative, Date

OWNERSHIP CERTIFICATION

Please certify that the following statement is true if the individuals for all submitted Form A disclosures do not total 100% of ownership.

Any remaining ownership interest is held by individuals receiving less than \$106,447.20 of the bidding entity's or parent entity's distributive income or holding less than a 5% ownership interest.

Yes No N/A (Form A disclosure(s) established 100% ownership)

RETURN WITH BID

SPECIAL NOTICE TO CONTRACTORS

The following requirements of the Illinois Department of Human Rights Act are applicable to bidders on all construction contracts advertised by the Illinois Department of Transportation:

CONSTRUCTION EMPLOYEE UTILIZATION PROJECTION

- (a) All bidders on construction contracts shall complete and submit, along with and as part of their bids, a Bidder's Employee Utilization Form (Form BC-1256) setting forth a projection and breakdown of the total workforce intended to be hired and/or allocated to such contract work by the bidder including a projection of minority and female employee utilization in all job classifications on the contract project.
- (b) The Department of Transportation shall review the Employee Utilization Form, and workforce projections contained therein, of the contract awardee to determine if such projections reflect an underutilization of minority persons and/or women in any job classification in accordance with the Equal Employment Opportunity Clause and Title 44, Illinois Administrative Code, Section 750.120. If it is determined that the contract awardee's projections reflect an underutilization of minority persons and/or women in any job classification, it shall be advised in writing of the manner in which it is underutilizing and such awardee shall be considered to be in breach of the contract unless, prior to commencement of work on the contract project, it submits revised satisfactory projections or an acceptable written affirmative action plan to correct such underutilization including a specific timetable geared to the completion stages of the contract.
- (c) The Department of Transportation shall provide to the Department of Human Rights a copy of the contract awardee's Employee Utilization Form, a copy of any required written affirmative action plan, and any written correspondence related thereto. The Department of Human Rights may review and revise any action taken by the Department of Transportation with respect to these requirements.

RETURN WITH BID

**Contract No. 91540
CHAMPAIGN County
Section 15-00304-02-PV (City Of Champaign)
Project TIG-5181(057)
Various Routes
District 5 Construction Funds**

PART II. WORKFORCE PROJECTION - continued

- B. Included in "Total Employees" under Table A is the total number of **new hires** that would be employed in the event the undersigned bidder is awarded this contract.

The undersigned bidder projects that: (number) _____ new hires would be recruited from the area in which the contract project is located; and/or (number) _____ new hires would be recruited from the area in which the bidder's principal office or base of operation is located.

- C. Included in "Total Employees" under Table A is a projection of numbers of persons to be employed directly by the undersigned bidder as well as a projection of numbers of persons to be employed by subcontractors.

The undersigned bidder estimates that (number) _____ persons will be directly employed by the prime contractor and that (number) _____ persons will be employed by subcontractors.

PART III. AFFIRMATIVE ACTION PLAN

- A. The undersigned bidder understands and agrees that in the event the foregoing minority and female employee utilization projection included under **PART II** is determined to be an underutilization of minority persons or women in any job category, and in the event that the undersigned bidder is awarded this contract, he/she will, prior to commencement of work, develop and submit a written Affirmative Action Plan including a specific timetable (geared to the completion stages of the contract) whereby deficiencies in minority and/or female employee utilization are corrected. Such Affirmative Action Plan will be subject to approval by the contracting agency and the **Illinois Department of Human Rights**.
- B. The undersigned bidder understands and agrees that the minority and female employee utilization projection submitted herein, and the goals and timetable included under an Affirmative Action Plan if required, are deemed to be part of the contract specifications.

Company _____

Telephone Number _____

Address _____

NOTICE REGARDING SIGNATURE

The Bidder's signature on the Proposal Signature Sheet will constitute the signing of this form. The following signature block needs to be completed only if revisions are required.

Signature: _____ Title: _____ Date: _____

- Instructions: All tables must include subcontractor personnel in addition to prime contractor personnel.
- Table A - Include both the number of employees that would be hired to perform the contract work and the total number currently employed (Table B) that will be allocated to contract work, and include all apprentices and on-the-job trainees. The "Total Employees" column should include all employees including all minorities, apprentices and on-the-job trainees to be employed on the contract work.
- Table B - Include all employees currently employed that will be allocated to the contract work including any apprentices and on-the-job trainees currently employed.
- Table C - Indicate the racial breakdown of the total apprentices and on-the-job trainees shown in Table A.

RETURN WITH BID

ADDITIONAL FEDERAL REQUIREMENTS

In addition to the Required Contract Provisions for Federal-Aid Construction Contracts (FHWA 1273), all bidders make the following certifications.

- A. By the execution of this proposal, the signing bidder certifies that the bidding entity has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action, in restraint of free competitive bidding in connection with the submitted bid. This statement made by the undersigned bidder is true and correct under penalty of perjury under the laws of the United States.
- B. CERTIFICATION, EQUAL EMPLOYMENT OPPORTUNITY:
1. Have you participated in any previous contracts or subcontracts subject to the equal opportunity clause. YES _____ NO _____
 2. If answer to #1 is yes, have you filed with the Joint Reporting Committee, the Director of OFCC, any Federal agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements of those organizations?
YES _____ NO _____

RETURN WITH BID

**Contract No. 91540
CHAMPAIGN County
Section 15-00304-02-PV (City Of Champaign)
Project TIG-5181(057)
Various Routes
District 5 Construction Funds**

PROPOSAL SIGNATURE SHEET

The undersigned bidder hereby makes and submits this bid on the subject Proposal, thereby assuring the Department that all requirements of the Invitation for Bids and rules of the Department have been met, that there is no misunderstanding of the requirements of paragraph 3 of this Proposal, and that the contract will be executed in accordance with the rules of the Department if an award is made on this bid.

(IF AN INDIVIDUAL)

Firm Name _____
Signature of Owner _____
Business Address _____

(IF A CO-PARTNERSHIP)

Firm Name _____
By _____
Business Address _____
Name and Address of All Members of the Firm: _____

(IF A CORPORATION)

Corporate Name _____
By _____
Signature of Authorized Representative _____
Typed or printed name and title of Authorized Representative _____
Attest _____
Signature _____
(IF A JOINT VENTURE, USE THIS SECTION FOR THE MANAGING PARTY AND THE SECOND PARTY SHOULD SIGN BELOW)
Business Address _____

(IF A JOINT VENTURE)

Corporate Name _____
By _____
Signature of Authorized Representative _____
Typed or printed name and title of Authorized Representative _____
Attest _____
Signature _____
Business Address _____

If more than two parties are in the joint venture, please attach an additional signature sheet.



This Annual Proposal Bid Bond shall become effective at 12:01 AM (CDST) on _____ and shall be valid until _____ 11:59 PM (CDST).

KNOW ALL PERSONS BY THESE PRESENTS, That We _____

as PRINCIPAL, and _____

as SURETY, and held jointly, severally and firmly bound unto the STATE OF ILLINOIS in the penal sum of 5 percent of the total bid price, or for the amount specified in the bid proposal under "Proposal Guaranty" in effect on the date of the Invitation for Bids, whichever is the lesser sum, well and truly to be paid unto said STATE OF ILLINOIS, for the payment of which we bind ourselves, our heirs, executors, administrators, successors and assigns.

THE CONDITION OF THE FOREGOING OBLIGATION IS SUCH that whereas, the PRINCIPAL may submit bid proposal(s) to the STATE OF ILLINOIS, acting through the Department of Transportation, for various improvements published in the Transportation Bulletin during the effective term indicated above.

NOW, THEREFORE, if the Department shall accept the bid proposal(s) of the PRINCIPAL; and if the PRINCIPAL shall, within the time and as specified in the bidding and contract documents; and if, after award by the Department, the PRINCIPAL shall enter into a contract in accordance with the terms of the bidding and contract documents including evidence of the required insurance coverages and providing such bond as specified with good and sufficient surety for the faithful performance of such contract and for the prompt payment of labor and material furnished in the prosecution thereof; or if, in the event of the failure of the PRINCIPAL to enter into such contract and to give the specified bond, the PRINCIPAL pays to the Department the difference not to exceed the penalty hereof between the amount specified in the bid proposal and such larger amount for which the Department may contract with another party to perform the work covered by said bid proposal, then this obligation shall be null and void, otherwise, it shall remain in full force and effect.

IN THE EVENT the Department determines the PRINCIPAL has failed to comply with any requirement as set forth in the preceding paragraph, then Surety shall pay the penal sum to the Department within fifteen (15) days of written demand therefor. If Surety does not make full payment within such period of time, the Department may bring an action to collect the amount owed. Surety is liable to the Department for all its expenses, including attorney's fees, incurred in any litigation in which it prevails either in whole or in part.

In TESTIMONY WHEREOF, the said PRINCIPAL has caused this instrument to be signed by its officer _____ day of _____ A.D., _____

In TESTIMONY WHEREOF, the said SURETY has caused this instrument to be signed by its officer _____ day of _____ A.D., _____

(Company Name)

(Company Name)

By _____
(Signature and Title)

By _____
(Signature of Attorney-in-Fact)

Notary for PRINCIPAL

Notary for SURETY

STATE OF _____
COUNTY OF _____

STATE OF _____
COUNTY OF _____

Signed and attested before me on _____ (date)

Signed and attested before me on _____ (date)

by _____
(Name of Notary Public)

by _____
(Name of Notary Public)

(Seal) _____
(Signature of Notary Public)

(Seal) _____
(Signature of Notary Public)

(Date Commission Expires)

(Date Commission Expires)

In lieu of completing the above section of the Annual Proposal Bid Bond form, the Principal may file an Electronic Bid Bond. By signing the proposal(s) the Principal is ensuring the identified electronic bid bond has been executed and the Principal and Surety are firmly bound unto the State of Illinois under the conditions of the bid bond as shown above.

Electronic Bid Bond ID #	Company/Bidder Name	Signature and Title
--------------------------	---------------------	---------------------

This bond may be terminated, at Surety's request, upon giving not less than thirty (30) days prior written notice of the cancellation/termination of the bond. Said written notice shall be issued to the Illinois Department of Transportation, Chief Contracts Official, 2300 South Dirksen Parkway, Springfield, Illinois, 62764, and shall be served in person, by receipted courier delivery or certified or registered mail, return receipt requested. Said notice period shall commence on the first calendar day following the Department's receipt of written cancellation/termination notice. Surety shall remain firmly bound to all obligations herein for proposals submitted prior to the cancellation/termination. Surety shall be released and discharged from any obligation(s) for proposals submitted for any letting or date after the effective date of cancellation/termination.



Return with Bid

Division of Highways
Proposal Bid Bond

Item No. _____

Letting Date _____

KNOW ALL PERSONS BY THESE PRESENTS, That We _____

as PRINCIPAL, and _____

as SURETY, and held jointly, severally and firmly bound unto the STATE OF ILLINOIS in the penal sum of 5 percent of the total bid price, or for the amount specified in the bid proposal under "Proposal Guaranty" in effect on the date of the Invitation for Bids, whichever is the lesser sum, well and truly to be paid unto said STATE OF ILLINOIS, for the payment of which we bind ourselves, our heirs, executors, administrators, successors and assigns.

THE CONDITION OF THE FOREGOING OBLIGATION IS SUCH that whereas, the PRINCIPAL has submitted a bid proposal to the STATE OF ILLINOIS, acting through the Department of Transportation, for the improvement designated by the Transportation Bulletin Item Number and Letting Date indicated above.

NOW, THEREFORE, if the Department shall accept the bid proposal of the PRINCIPAL; and if the PRINCIPAL shall, within the time and as specified in the bidding and contract documents; and if, after award by the Department, the PRINCIPAL shall enter into a contract in accordance with the terms of the bidding and contract documents including evidence of the required insurance coverages and providing such bond as specified with good and sufficient surety for the faithful performance of such contract and for the prompt payment of labor and material furnished in the prosecution thereof; or if, in the event of the failure of the PRINCIPAL to enter into such contract and to give the specified bond, the PRINCIPAL pays to the Department the difference not to exceed the penalty hereof between the amount specified in the bid proposal and such larger amount for which the Department may contract with another party to perform the work covered by said bid proposal, then this obligation shall be null and void, otherwise, it shall remain in full force and effect.

IN THE EVENT the Department determines the PRINCIPAL has failed to comply with any requirement as set forth in the preceding paragraph, then Surety shall pay the penal sum to the Department within fifteen (15) days of written demand therefor. If Surety does not make full payment within such period of time, the Department may bring an action to collect the amount owed. Surety is liable to the Department for all its expenses, including attorney's fees, incurred in any litigation in which it prevails either in whole or in part.

In TESTIMONY WHEREOF, the said PRINCIPAL has caused this instrument to be signed by its officer _____ day of _____ A.D., _____

In TESTIMONY WHEREOF, the said SURETY has caused this instrument to be signed by its officer _____ day of _____ A.D., _____

(Company Name)

(Company Name)

By _____ (Signature and Title)

By _____ (Signature of Attorney-in-Fact)

Notary for PRINCIPAL

Notary for SURETY

STATE OF _____
COUNTY OF _____

STATE OF _____
COUNTY OF _____

Signed and attested before me on _____ (date)
by _____

Signed and attested before me on _____ (date)
by _____

(Name of Notary Public)

(Name of Notary Public)

(Seal) _____ (Signature of Notary Public)

(Seal) _____ (Signature of Notary Public)

(Date Commission Expires)

(Date Commission Expires)

In lieu of completing the above section of the Proposal Bid Bond form, the Principal may file an Electronic Bid Bond. By signing the proposal the Principal is ensuring the identified electronic bid bond has been executed and the Principal and Surety are firmly bound unto the State of Illinois under the conditions of the bid bond as shown above.

Electronic Bid Bond ID # _____ Company/Bidder Name _____ Signature and Title _____

(1) Policy

It is public policy that disadvantageded businesses as defined in 49 CFR Part 26 and the Special Provision shall have the maximum opportunity to participate in the performance of contracts financed in whole or in part with Federal or State funds. Consequently the requirements of 49 CFR Part 26 apply to this contract.

(2) Obligation

The contractor agrees to ensure that disadvantageded businesses as defined in 49 CFR Part 26 and the Special Provision have the maximum opportunity to participate in the performance of contracts or subcontracts financed in whole or in part with Federal or State funds. The contractor shall take all necessary and reasonable steps in accordance with 49 CFR Part 26 and the Special Provision to ensure that said businesses have the maximum opportunity to compete for and perform under this contract. The contractor shall not discriminate on the basis of race, color, national origin or sex in the award and performance of contracts.

(3) Project and Bid Identification

Complete the following information concerning the project and bid:

Route _____	Total Bid _____
Section _____	Contract DBE Goal _____ (Percent) _____ (Dollar Amount)
Project _____	
County _____	
Letting Date _____	
Contract No. _____	
Letting Item No. _____	

(4) Assurance

I, acting in my capacity as an officer of the undersigned bidder (or bidders if a joint venture), hereby assure the Department that on this project my company : (check one)

- Meets or exceeds contract award goals and has provided documented participation as follows:
Disadvantaged Business Participation _____ percent

Attached are the signed participation statements, forms SBE 2025, required by the Special Provision evidencing availability and use of each business participating in this plan and assuring that each business will perform a commercially useful function in the work of the contract.

- Failed to meet contract award goals and has included good faith effort documentation to meet the goals and that my company has provided participation as follows:

Disadvantaged Business Participation _____ percent

The contract goals should be accordingly modified or waived. Attached is all information required by the Special Provision in support of this request including good faith effort. Also attached are the signed participation statements, forms SBE 2025, required by the Special Provision evidencing availability and use of each business participating in this plan and assuring that each business will perform a commercially useful function in the work of the contract.

Company

By _____

Title _____

Date _____

The "as read" Low Bidder is required to comply with the Special Provision.	
Submit only one utilization plan for each project. The utilization plan shall be submitted in accordance with the special provision.	
Bureau of Small Business Enterprises 2300 South Dirksen Parkway Springfield, Illinois 62764	Local Let Projects Submit forms to the Local Agency

The Department of Transportation is requesting disclosure of information that is necessary to accomplish the purpose as outlined under State and Federal law. Disclosure of this information is **REQUIRED**. Failure to provide any information will result in the contract not being awarded. This form has been approved by the State Forms Manager Center.



Illinois Department of Transportation

DBE Participation Statement

Subcontractor Registration Number _____

Letting _____

Participation Statement

Item No. _____

(1) Instructions

Contract No. _____

This form must be completed for each disadvantaged business participating in the Utilization Plan. This form shall be submitted in accordance with the special provision and will be attached to the Utilization Plan form. If additional space is needed complete an additional form for the firm. Trucking participation items; description must list what is anticipated towards goal credit.

(2) Work:

Please indicate: J/V _____ Manufacturer _____ Supplier (60%) _____ Subcontractor _____ Trucking _____

Pay Item No.	Description (Anticipated items for trucking)*	Quantity	Unit Price	Total
Total				

(3) Partial Payment Items (For any of the above items which are partial pay items)

Description must be sufficient to determine a Commercially Useful Function, specifically describe the work and subcontract dollar amount:

*Applies to trucking only

(4) Commitment

When a DBE is to be a second-tier subcontractor, or if the first-tier DBE subcontractor is going to be subcontracting a portion of its subcontract, it must be clearly indicated on the DBE Participation Statement, and the details of the transaction fully explained.

In the event a DBE subcontractor second-tiers a portion of its subcontract to one or more subcontractors during the work of a contract, the prime must submit a DBE Participation Statement, with the details of the transaction(s) fully explained.

The undersigned certify that the information included herein is true and correct, and that the DBE firm listed below has agreed to perform a commercially useful function in the work of the contract item(s) listed above and to execute a contract with the prime contractor or 1st Tier subcontractor. The undersigned further understand that no changes to this statement may be made without prior approval from the Department's Bureau of Small Business Enterprises and that complete and accurate information regarding actual work performed on this project and the payment therefore must be provided to the Department.

Signature for Contractor __ 1st Tier __ 2nd Tier

Date _____

Contact Person _____

Title _____

Firm Name _____

Address _____

City/State/Zip _____

Phone _____

Email Address _____

Signature for DBE Firm __ 1st Tier __ 2nd Tier

Date _____

Contact Person _____

Title _____

Firm Name _____

Address _____

City/State/Zip _____

Phone _____

Email Address _____

E _____

WC _____

The Department of Transportation is requesting disclosure of information that is necessary to accomplish the statutory purpose as outlined under the state and federal law. Disclosure of this information is **REQUIRED**. Failure to provide any information will result in the contract not being awarded. This form has been approved by the State Forms Management Center.

PROPOSAL ENVELOPE



PROPOSALS

for construction work advertised for bids by the
Illinois Department of Transportation

Item No.	Item No.	Item No.

Submitted By:

Name:
Address:
Phone No.

Bidders should use an IDOT proposal envelope or affix this form to the front of a 10" x 13" envelope for the submittal of bids. If proposals are mailed, they should be enclosed in a second or outer envelope addressed to:

Engineer of Design and Environment - Room 326
Illinois Department of Transportation
2300 South Dirksen Parkway
Springfield, Illinois 62764

NOTICE

Individual bids, including Bid Bond and/or supplemental information if required, should be securely stapled.

CONTRACTOR OFFICE COPY OF CONTRACT SPECIFICATIONS

NOTICE

None of the following material needs to be returned with the bid package unless the special provisions require documentation and/or other information to be submitted.

**Contract No. 91540
CHAMPAIGN County
Section 15-00304-02-PV (City Of Champaign)
Project TIG-5181(057)
Various Routes
District 5 Construction Funds**



Illinois Department of Transportation

SUBCONTRACTOR DOCUMENTATION

Public Acts 96-0795, 96-0920, and 97-0895 enacted substantial changes to the provisions of the Code (30 ILCS 500). Among the changes are provisions affecting subcontractors. The Contractor awarded this contract will be required as a material condition of the contract to implement and enforce the contract requirements applicable to subcontractors that entered into a contractual agreement with a total value of \$50,000 or more with a person or entity who has a contract subject to the Code and approved in accordance with article 108.01 of the Standard Specifications for Road and Bridge Construction.

If the Contractor seeks approval of subcontractors to perform a portion of the work, and approval is granted by the Department, the Contractor shall provide a copy of the subcontract to the Illinois Department of Transportation's CPO upon request within 15 calendar days after execution of the subcontract.

Financial disclosures required pursuant to Sec. 50-35 of the Code must be submitted for all applicable subcontractors. The subcontract shall contain the certifications required to be made by subcontractors pursuant to Article 50 of the Code. This Notice to Bidders includes a document incorporating all required subcontractor certifications and disclosures for use by the Contractor in compliance with this mandate. The document is entitled State Required Ethical Standards Governing Subcontractors.

RETURN WITH SUBCONTRACT

STATE ETHICAL STANDARDS GOVERNING SUBCONTRACTORS

Article 50 of the Code establishes the duty of all State CPOs, SPOs, and their designees to maximize the value of the expenditure of public moneys in procuring goods, services, and contracts for the State of Illinois and to act in a manner that maintains the integrity and public trust of State government. In discharging this duty, they are charged by law to use all available information, reasonable efforts, and reasonable actions to protect, safeguard, and maintain the procurement process of the State of Illinois.

The certifications hereinafter made by the subcontractor are each a material representation of fact upon which reliance is placed should the Department approve the subcontractor. The CPO may terminate or void the contract approval if it is later determined that the bidder or subcontractor rendered a false or erroneous certification. If a false certification is made by a subcontractor the contractor's submitted bid and the executed contract may not be declared void unless the contractor refuses to terminate the subcontract upon the State's request after a finding that the subcontractor's certification was false.

Section 50-2 of the Code provides that every person that has entered into a multi-year contract and every subcontractor with a multi-year subcontract shall certify, by July 1 of each fiscal year covered by the contract after the initial fiscal year, to the responsible CPO whether it continues to satisfy the requirements of Article 50 pertaining to the eligibility for a contract award. If a contractor or subcontractor is not able to truthfully certify that it continues to meet all requirements, it shall provide with its certification a detailed explanation of the circumstances leading to the change in certification status. A contractor or subcontractor that makes a false statement material to any given certification required under Article 50 is, in addition to any other penalties or consequences prescribed by law, subject to liability under the Whistleblower Reward and Protection Act for submission of a false claim.

A. Bribery

Section 50-5. Bribery.

(a) Prohibition. No person or business shall be awarded a contract or subcontract under this Code who:

(1) has been convicted under the laws of Illinois or any other state of bribery or attempting to bribe an officer or employee of the State of Illinois or any other state in that officer's or employee's official capacity; or

(2) has made an admission of guilt of that conduct that is a matter of record but has not been prosecuted for that conduct.

(b) Businesses. No business shall be barred from contracting with any unit of State or local government, or subcontracting under such a contract, as a result of a conviction under this Section of any employee or agent of the business if the employee or agent is no longer employed by the business and:

(1) the business has been finally adjudicated not guilty; or

(2) the business demonstrates to the governmental entity with which it seeks to contract, or which is signatory to the contract to which the subcontract relates, and that entity finds that the commission of the offense was not authorized, requested, commanded, or performed by a director, officer, or high managerial agent on behalf of the business as provided in paragraph (2) of subsection (a) of Section 5-4 of the Criminal Code of 2012.

(c) Conduct on behalf of business. For purposes of this Section, when an official, agent, or employee of a business committed the bribery or attempted bribery on behalf of the business and in accordance with the direction or authorization of a responsible official of the business, the business shall be chargeable with the conduct.

(d) Certification. Every bid submitted to and contract executed by the State, and every subcontract subject to Section 20-120 of the Code shall contain a certification by the contractor or the subcontractor, respectively, that the contractor or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the CPO may declare the related contract void if any certifications required by this Section are false. A contractor who makes a false statement, material to the certification, commits a Class 3 felony.

The contractor or subcontractor certifies that it is not barred from being awarded a contract under Section 50-5.

B. Felons

Section 50-10. Felons.

(a) Unless otherwise provided, no person or business convicted of a felony shall do business with the State of Illinois or any State agency, or enter into a subcontract, from the date of conviction until 5 years after the date of completion of the sentence for that felony, unless no person held responsible by a prosecutorial office for the facts upon which the conviction was based continues to have any involvement with the business.

(b) Certification. Every bid submitted to and contract executed by the State and every subcontract subject to Section 20-120 of the Code shall contain a certification by the bidder or contractor or subcontractor, respectively, that the bidder, contractor, or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the CPO may declare the related contract void if any of the certifications required by this Section are false.

RETURN WITH SUBCONTRACT

C. Debt Delinquency

Section 50-11 and 50-12. Debt Delinquency.

The contractor or bidder or subcontractor, respectively, certifies that it, or any affiliate, is not barred from being awarded a contract or subcontract under the Code. Section 50-11 prohibits a person from entering into a contract with a State agency, or entering into a subcontract, if it knows or should know that it, or any affiliate, is delinquent in the payment of any debt to the State as defined by the Debt Collection Board. Section 50-12 prohibits a person from entering into a contract with a State agency, or entering into a subcontract, if it, or any affiliate, has failed to collect and remit Illinois Use Tax on all sales of tangible personal property into the State of Illinois in accordance with the provisions of the Illinois Use Tax Act. The bidder or contractor or subcontractor, respectively, further acknowledges that the CPO may declare the related contract void if this certification is false or if the bidder, contractor, or subcontractor, or any affiliate, is determined to be delinquent in the payment of any debt to the State during the term of the contract.

D. Prohibited Bidders, Contractors and Subcontractors

Section 50-10.5 and 50-60(c). Prohibited bidders, contractors and subcontractors.

The bidder or contractor or subcontractor, respectively, certifies in accordance with 30 ILCS 500/50-10.5 that no officer, director, partner or other managerial agent of the contracting business has been convicted of a felony under the Sarbanes-Oxley Act of 2002 or a Class 3 or Class 2 felony under the Illinois Securities Law of 1953 or if in violation of Subsection (c) for a period of five years from the date of conviction. Every bid submitted to and contract executed by the State and every subcontract subject to Section 20-120 of the Code shall contain a certification by the bidder, contractor, or subcontractor, respectively, that the bidder, contractor, or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the CPO shall declare the related contract void if any of the certifications completed pursuant to this Section are false.

E. Section 42 of the Environmental Protection Act

The bidder or contractor or subcontractor, respectively, certifies in accordance with 30 ILCS 500/50-14 that the bidder, contractor, or subcontractor, is not barred from being awarded a contract or entering into a subcontract under this Section which prohibits the bidding on or entering into contracts with the State of Illinois or a State agency, or entering into any subcontract, that is subject to the Code by a person or business found by a court or the Pollution Control Board to have committed a willful or knowing violation of Section 42 of the Environmental Protection Act for a period of five years from the date of the order. The bidder or contractor or subcontractor, respectively, acknowledges that the CPO may declare the contract void if this certification is false.

The undersigned, on behalf of the subcontracting company, has read and understands the above certifications and makes the certifications as required by law.

_____ Name of Subcontracting Company		
_____ Authorized Officer	_____ Date	

RETURN WITH SUBCONTRACT
SUBCONTRACTOR DISCLOSURES

I. DISCLOSURES

- A.** The disclosures hereinafter made by the subcontractor are each a material representation of fact upon which reliance is placed. The subcontractor further certifies that the Department has received the disclosure forms for each subcontract.

The CPO may void the bid, contract, or subcontract, respectively, if it is later determined that the bidder or subcontractor rendered a false or erroneous disclosure. A contractor or subcontractor may be scuspended or debarred for violations of the Code. Furthermore, the CPO may void the contract.

B. Financial Interests and Conflicts of Interest

1. Section 50-35 of the Code provides that all subcontracts with a total value of \$50,000 or more, from subcontractors identified in Section 20-120 of the Code, shall be accompanied by disclosure of the financial interests of the subcontractor. This disclosed information for the subcontractor, will be maintained as public information subject to release by request pursuant to the Freedom of Information Act, filed with the Procurement Policy Board, and shall be incorporated as a material term of the Prime Contractor's contract. Furthermore, pursuant to this Section, the Procurement Policy Board may recommend to allow or void a contract or subcontract based on a potential conflict of interest.

The financial interests to be disclosed shall include ownership or distributive income share that is in excess of 5%, or an amount greater than 60% of the annual salary of the Governor, of the subcontracting entity or its parent entity, whichever is less, unless the subcontractor is a publicly traded entity subject to Federal 10K reporting, in which case it may submit its 10K disclosure in place of the prescribed disclosure. If a subcontractor is a privately held entity that is exempt from Federal 10K reporting, but has more than 100 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any individual or entity holding any ownership share that is in excess of 5%. The disclosure shall include the names, addresses, and dollar or proportionate share of ownership of each individual making the disclosure, their instrument of ownership or beneficial relationship, and notice of any potential conflict of interest resulting from the current ownership or beneficial interest of each individual making the disclosure having any of the relationships identified in Section 50-35 and on the disclosure form.

The current annual salary of the Governor is \$177,412.00.

In addition, all disclosures shall indicate any other current or pending contracts, subcontracts, proposals, leases, or other ongoing procurement relationships the subcontracting entity has with any other unit of state government and shall clearly identify the unit and the contract, subcontract, proposal, lease, or other relationship.

2. Disclosure Forms. Disclosure Form A is attached for use concerning the individuals meeting the above ownership or distributive share requirements. A separate Disclosure Form A must be submitted with the bid for each individual meeting the above requirements. In addition, a second form (Disclosure Form B) provides for the disclosure of current or pending procurement relationships with other (non-IDOT) state agencies and a total ownership certification.

C. Disclosure Form Instructions

Form A Instructions for Financial Information & Potential Conflicts of Interest

If the subcontractor is a publicly traded entity subject to Federal 10K reporting, the 10K Report may be submitted to meet the requirements of Form A. If a subcontractor is a privately held entity that is exempt from Federal 10K reporting, but has more than 100 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any individual or entity holding any ownership share that is in excess of 5%. If a subcontractor is not subject to Federal 10K reporting, the subcontractor must determine if any individuals are required by law to complete a financial disclosure form. To do this, the subcontractor should answer each of the following questions. A "YES" answer indicates Form A must be completed. If the answer to each of the following questions is "NO", then the **NOT APPLICABLE STATEMENT** on the second page of Form A must be signed and dated by an individual that is authorized to execute contracts for the subcontracting company. Note: These questions are for assistance only and are not required to be completed.

1. Does anyone in your organization have a direct or beneficial ownership share of greater than 5% of the bidding entity or parent entity? YES ___ NO ___
2. Does anyone in your organization have a direct or beneficial ownership share of less than 5%, but which has a value greater than 60% of the annual salary of the Governor? YES ___ NO ___
3. Does anyone in your organization receive more than 60% of the annual salary of the Governor of the subcontracting entity's or parent entity's distributive income? YES ___ NO ___

(Note: Distributive income is, for these purposes, any type of distribution of profits. An annual salary is not distributive income.)

4. Does anyone in your organization receive greater than 5% of the subcontracting entity's or parent entity's total distributive income, but which is less than 60% of the annual salary of the Governor? YES ___ NO ___

(Note: Only one set of forms needs to be completed per individual per subcontract even if a specific individual would require a yes answer to more than one question.)

A "YES" answer to any of these questions requires the completion of Form A. The subcontractor must determine each individual in the subcontracting entity or the subcontracting entity's parent company that would cause the questions to be answered "Yes". Each form must be signed and dated by an individual that is authorized to execute contracts for your organization. The individual signing can be, but does not have to be, the individual for which the form is being completed. The subcontractor is responsible for the accuracy of any information provided.

If the answer to each of the above questions is "NO", then the **NOT APPLICABLE STATEMENT** on page 2 of Form A must be signed and dated by an individual that is authorized to execute contracts for your company.

RETURN WITH SUBCONTRACT

Form B: Instructions for Identifying Other Contracts & Procurement Related Information

Disclosure Form B must be completed for each subcontract submitted by the subcontracting entity. *Note: Checking the NOT APPLICABLE STATEMENT on Form A does not allow the subcontractor to ignore Form B. Form B must be completed, checked, and dated or the subcontract will not be approved.*

The Subcontractor shall identify, by checking Yes or No on Form B, whether it has any pending contracts, subcontracts, leases, bids, proposals, or other ongoing procurement relationship with any other (non-IDOT) State of Illinois agency. If "No" is checked, the subcontractor only needs to complete the check box on the bottom of Form B. If "Yes" is checked, the subcontractor must list all non-IDOT State of Illinois agency pending contracts, subcontracts, leases, bids, proposals, and other ongoing procurement relationships. These items may be listed on Form B or on an attached sheet(s). Contracts with cities, counties, villages, etc. are not considered State of Illinois agency contracts and are not to be included. Contracts or subcontracts with other State of Illinois agencies such as the Department of Natural Resources or the Capital Development Board must be included.

**ILLINOIS DEPARTMENT
OF TRANSPORTATION**

**Form A
Subcontractor: Financial
Information & Potential Conflicts
of Interest Disclosure**

Subcontractor Name		
Legal Address		
City, State, Zip		
Telephone Number	Email Address	Fax Number (if available)

Disclosure of the information contained in this Form is required by Section 50-35 of the Code (30 ILCS 500). Subcontractors desiring to enter into a subcontract of a State of Illinois contract must disclose the financial information and potential conflict of interest information as specified in this Disclosure Form. This information shall become part of the publicly available contract file. This Form A must be completed for subcontracts with a total value of \$50,000 or more, from subcontractors identified in Section 20-120 of the Code, and for all open-ended contracts. **A publicly traded company may submit a 10K disclosure (or equivalent if applicable) in satisfaction of the requirements set forth in Form A. See Disclosure Form Instructions.**

The current annual salary of the Governor is \$177,412.00.

DISCLOSURE OF FINANCIAL INFORMATION

1. Disclosure of Financial Information. The individual named below has an interest in the SUBCONTRACTOR (or its parent) in terms of ownership or distributive income share in excess of 5%, or an interest which has a value of more than 60% of the annual salary of the Governor. **(Make copies of this form as necessary and attach a separate Disclosure Form A for each individual meeting these requirements)**

FOR INDIVIDUAL (type or print information)	
NAME:	_____
ADDRESS	_____
Type of ownership/distributable income share:	
stock _____ sole proprietorship _____ Partnership _____ other: (explain on separate sheet):	
% or \$ value of ownership/distributable income share:	_____

2. Disclosure of Potential Conflicts of Interest. Check "Yes" or "No" to indicate which, if any, of the following potential conflict of interest relationships apply. If the answer to any question is "Yes", please attach additional pages and describe.

(a) State employment, currently or in the previous 3 years, including contractual employment of services.

Yes ___ No ___

If your answer is yes, please answer each of the following questions.

1. Are you currently an officer or employee of either the Capitol Development Board or the Illinois State Toll Highway Authority? Yes ___ No ___

2. Are you currently appointed to or employed by any agency of the State of Illinois? If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor, provide the name the State agency for which you are employed and your annual salary. _____

RETURN WITH SUBCONTRACT

3. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor, are you entitled to receive (i) more than 7 1/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of 100% of the annual salary of the Governor?
Yes ___ No ___

4. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor, are you and your spouse or minor children entitled to receive (i) more than 15 % in the aggregate of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of two times the salary of the Governor?
Yes ___ No ___

(b) State employment of spouse, father, mother, son, or daughter, including contractual employment services in the previous 2 years.

Yes ___ No ___

If your answer is yes, please answer each of the following questions.

1. Is your spouse or any minor children currently an officer or employee of the Capitol Development Board or the Illinois State Toll Highway Authority?
Yes ___ No ___

2. Is your spouse or any minor children currently appointed to or employed by any agency of the State of Illinois? If your spouse or minor children is/are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, provide the name of your spouse and/or minor children, the name of the State agency for which he/she is employed and his/her annual salary. _____

3. If your spouse or any minor children is/are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, are you entitled to receive (i) more than 7 1/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of 100% of the annual salary of the Governor?
Yes ___ No ___

4. If your spouse or any minor children are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, are you and your spouse or minor children entitled to receive (i) more than 15 % in the aggregate of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of two times the salary of the Governor?
Yes ___ No ___

(c) Elective status; the holding of elective office of the State of Illinois, the government of the United States, any unit of local government authorized by the Constitution of the State of Illinois or the statutes of the State of Illinois currently or in the previous 3 years.
Yes ___ No ___

(d) Relationship to anyone holding elective office currently or in the previous 2 years; spouse, father, mother, son, or daughter.
Yes ___ No ___

(e) Appointive office; the holding of any appointive government office of the State of Illinois, the United States of America, or any unit of local government authorized by the Constitution of the State of Illinois or the statutes of the State of Illinois, which office entitles the holder to compensation in excess of the expenses incurred in the discharge of that office currently or in the previous 3 years.
Yes ___ No ___

(f) Relationship to anyone holding appointive office currently or in the previous 2 years; spouse, father, mother, son, or daughter.
Yes ___ No ___

(g) Employment, currently or in the previous 3 years, as or by any registered lobbyist of the State government.
Yes ___ No ___

RETURN WITH SUBCONTRACT

(h) Relationship to anyone who is or was a registered lobbyist in the previous 2 years; spouse, father, mother, son, or daughter. Yes ___ No ___

(i) Compensated employment, currently or in the previous 3 years, by any registered election or reelection committee registered with the Secretary of State or any county clerk of the State of Illinois, or any political action committee registered with either the Secretary of State or the Federal Board of Elections. Yes ___ No ___

(j) Relationship to anyone; spouse, father, mother, son, or daughter; who was a compensated employee in the last 2 years by any registered election or re-election committee registered with the Secretary of State or any county clerk of the State of Illinois, or any political action committee registered with either the Secretary of State or the Federal Board of Elections. Yes ___ No ___

3 Communication Disclosure.

Disclose the name and address of each lobbyist and other agent of the bidder or offeror who is not identified in Section 2 of this form, who is has communicated, is communicating, or may communicate with any State officer or employee concerning the bid or offer. This disclosure is a continuing obligation and must be promptly supplemented for accuracy throughout the process and throughout the term of the contract. If no person is identified, enter "None" on the line below:

Name and address of person(s): _____

RETURN WITH SUBCONTRACT

4. Suspension or Debarment Disclosure. For each of the persons identified under Sections 2 and 3 of this form, disclose whether any of the following has occurred within the previous 10 years: suspension or debarment from contracting with any governmental entity; professional licensure discipline; bankruptcies; adverse civil judgments and administrative findings; and criminal felony convictions. This disclosure is a continuing obligation and must be promptly supplemented for accuracy throughout the procurement process and term of the contract. If no person is identified, enter "None" on the line below:

Name of person(s): _____

Nature of disclosure: _____

APPLICABLE STATEMENT

This Disclosure Form A is submitted on behalf of the INDIVIDUAL named on previous page. Under penalty of perjury, I certify the contents of this disclosure to be true and accurate to the best of my knowledge.

Completed by: _____ Date _____
Signature of Individual or Authorized Officer

NOT APPLICABLE STATEMENT

Under penalty of perjury, I have determined that no individuals associated with this organization meet the criteria that would require the completion of this Form A.

This Disclosure Form A is submitted on behalf of the SUBCONTRACTOR listed on the previous page.

_____ Date _____
Signature of Authorized Officer

RETURN WITH SUBCONTRACT

ILLINOIS DEPARTMENT OF TRANSPORTATION

Form B
Subcontractor: Other Contracts & Financial Related Information Disclosure

Form with fields: Subcontractor Name, Legal Address, City, State, Zip, Telephone Number, Email Address, Fax Number (if available)

Disclosure of the information contained in this Form is required by Section 50-35 of the Code (30 ILCS 500). This information shall become part of the publicly available contract file.

DISCLOSURE OF OTHER CONTRACTS, SUBCONTRACTS, AND PROCUREMENT RELATED INFORMATION

1. Identifying Other Contracts & Procurement Related Information. The SUBCONTRACTOR shall identify whether it has any pending contracts, subcontracts, including leases, bids, proposals, or other ongoing procurement relationship with any other State of Illinois agency: Yes ___ No ___
If "No" is checked, the subcontractor only needs to complete the signature box on this page.

2. If "Yes" is checked. Identify each such relationship by showing State of Illinois agency name and other descriptive information such as bid or project number (attach additional pages as necessary). SEE DISCLOSURE FORM INSTRUCTIONS:

THE FOLLOWING STATEMENT MUST BE CHECKED

Signature box with fields for Signature of Authorized Officer and Date

OWNERSHIP CERTIFICATION

Please certify that the following statement is true if the individuals for all submitted Form A disclosures do not total 100% of ownership

Any remaining ownership interest is held by individuals receiving less than \$106,447.20 of the bidding entity's or parent entity's distributive income or holding less than a 5% ownership interest.

Yes No N/A (Form A disclosure(s) established 100% ownership)



- 1. TIME AND PLACE OF OPENING BIDS.** Sealed proposals for the improvement described herein will be received by the Department of Transportation. Electronic bids are to be submitted to the electronic bidding system (iCX-Integrated Contractors Exchange). Paper-based bids are to be submitted to the Chief Procurement Officer for the Department of Transportation in care of the Chief Contracts Official at the Harry R. Hanley Building, 2300 South Dirksen Parkway, in Springfield, Illinois until 10:00 a.m. July 29, 2016. All bids will be gathered, sorted, publicly opened and read in the auditorium at the Department of Transportation's Harry R. Hanley Building shortly after 10:00 a.m.
- 2. DESCRIPTION OF WORK.** The proposed improvement is identified and advertised for bids in the Invitation for Bids as:

**Contract No. 91540
CHAMPAIGN County
Section 15-00304-02-PV (City Of Champaign)
Project TIG-5181(057)
Various Routes
District 5 Construction Funds**

Intersection and pavement improvements on Green Street from Neil Street to Fourth Street; White Street from Second Street to Wright Street and Wright Street from White Street to Springfield Avenue in the City of Champaign.

- 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 readvertise the proposed improvement, and to waive technicalities.

By Order of the
Illinois Department of Transportation

Randall S. Blankenhorn,
Secretary

CONTRACT 91540

INDEX
FOR
SUPPLEMENTAL SPECIFICATIONS
AND RECURRING SPECIAL PROVISIONS

Adopted April 1, 2016

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

Std. Spec. Sec.

Page No.

No Supplemental Specifications this year.

CHECK SHEET
FOR
RECURRING SPECIAL PROVISIONS

Adopted April 1, 2016

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

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

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LR SD13		<input type="checkbox"/> Required Cold Milled Surface Texture	Nov. 1, 1987	Jan. 1, 2007
LR 107-2		<input type="checkbox"/> Railroad Protective Liability Insurance for Local Lettings	Mar. 1, 2005	Jan. 1, 2006
LR 107-4	399	<input checked="" type="checkbox"/> Insurance	Feb. 1, 2007	Aug. 1, 2007
LR 108		<input type="checkbox"/> Combination Bids	Jan. 1, 1994	Mar. 1, 2005
LR 109		<input type="checkbox"/> Equipment Rental Rates	Jan. 1, 2012	
LR 212		<input type="checkbox"/> Shaping Roadway	Aug. 1, 1969	Jan. 1, 2002
LR 355-1		<input type="checkbox"/> Bituminous Stabilized Base Course, Road Mix or Traveling Plant Mix	Oct. 1, 1973	Jan. 1, 2007
LR 355-2		<input type="checkbox"/> Bituminous Stabilized Base Course, Plant Mix	Feb. 20, 1963	Jan. 1, 2007
LR 400-1		<input type="checkbox"/> Bituminous Treated Earth Surface	Jan. 1, 2007	Apr. 1, 2012
LR 400-2		<input type="checkbox"/> Bituminous Surface Plant Mix (Class B)	Jan. 1, 2008	
LR 400-3		<input type="checkbox"/> Hot In-Place Recycling (HIR) – Surface Recycling	Jan. 1, 2012	
LR 400-4		<input type="checkbox"/> Full-Depth Reclamation (FDR) with Emulsified Asphalt	Apr. 1, 2012	Jun. 1, 2012
LR 400-5		<input type="checkbox"/> Cold In-Place Recycling (CIR) With Emulsified Asphalt	Apr. 1, 2012	Jun. 1, 2012
LR 400-6		<input type="checkbox"/> Cold In Place Recycling (CIR) with Foamed Asphalt	June 1, 2012	
LR 400-7		<input type="checkbox"/> Full-Depth Reclamation (FDR) with Foamed Asphalt	June 1, 2012	
LR 402		<input type="checkbox"/> Salt Stabilized Surface Course	Feb. 20, 1963	Jan. 1, 2007
LR 403-1		<input type="checkbox"/> Surface Profile Milling of Existing, Recycled or Reclaimed Flexible Pavement	Apr. 1, 2012	Jun. 1, 2012
LR 403-2		<input type="checkbox"/> Bituminous Hot Mix Sand Seal Coat	Aug. 1, 1969	Jan. 1, 2007
LR 406		<input type="checkbox"/> Filling HMA Core Holes with Non-shrink Grout	Jan. 1, 2008	
LR 420		<input type="checkbox"/> PCC Pavement (Special)	May 12, 1964	Jan. 2, 2007
LR 442		<input type="checkbox"/> Bituminous Patching Mixtures for Maintenance Use	Jan. 1, 2004	Jun. 1, 2007
LR 451		<input type="checkbox"/> Crack Filling Bituminous Pavement with Fiber-Asphalt	Oct. 1, 1991	Jan. 1, 2007
LR 503-1		<input type="checkbox"/> Furnishing Class SI Concrete	Oct. 1, 1973	Jan. 1, 2002
LR 503-2		<input type="checkbox"/> Furnishing Class SI Concrete (Short Load)	Jan. 1, 1989	Jan. 1, 2002
LR 542		<input type="checkbox"/> Pipe Culverts, Type _____ (Furnished)	Sep. 1, 1964	Jan. 1, 2007
LR 663		<input type="checkbox"/> Calcium Chloride Applied	Jun. 1, 1958	Jan. 1, 2007
LR 702	400	<input checked="" type="checkbox"/> Construction and Maintenance Signs	Jan. 1, 2004	Jun. 1, 2007
LR 1000-1		<input type="checkbox"/> Cold In-Place Recycling (CIR) and Full Depth Reclamation (FDR) with Emulsified Asphalt Mix Design Procedures	Apr. 1, 2012	Jun. 1, 2012
LR 1000-2		<input type="checkbox"/> Cold In-Place Recycling (CIR) and Full Depth Reclamation (FDR) with Foamed Asphalt Mix Design Procedures	June 1, 2012	
LR 1004		<input type="checkbox"/> Coarse Aggregate for Bituminous Surface Treatment	Jan. 1, 2002	Jan. 1, 2007
LR 1030		<input type="checkbox"/> Growth Curve	Mar. 1, 2008	Jan. 1, 2010
LR 1032-1		<input type="checkbox"/> Emulsified Asphalts	Jan. 1, 2007	Feb. 7, 2008
LR 1102		<input type="checkbox"/> Road Mix or Traveling Plan Mix Equipment	Jan. 1, 2007	

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.

<u>File Name</u>	<u>Pg.</u>		<u>Special Provision Title</u>	<u>Effective</u>	<u>Revised</u>
80099	401	X	Accessible Pedestrian Signals (APS)	April 1, 2003	Jan. 1, 2014
80274			Aggregate Subgrade Improvement	April 1, 2012	April 1, 2016
80192			Automated Flagger Assistance Device	Jan. 1, 2008	
80173			Bituminous Materials Cost Adjustments	Nov. 2, 2006	July 1, 2015
80241			Bridge Demolition Debris	July 1, 2009	
50261			Building Removal-Case I (Non-Friable and Friable Asbestos)	Sept. 1, 1990	April 1, 2010
50481			Building Removal-Case II (Non-Friable Asbestos)	Sept. 1, 1990	April 1, 2010
50491			Building Removal-Case III (Friable Asbestos)	Sept. 1, 1990	April 1, 2010
50531			Building Removal-Case IV (No Asbestos)	Sept. 1, 1990	April 1, 2010
* 80366	403	X	Butt Joints	July 1, 2016	
80360	404	X	Coarse Aggregate Quality	July 1, 2015	
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
80277	406	X	Concrete Mix Design – Department Provided	Jan. 1, 2012	April 1, 2016
80261			Construction Air Quality – Diesel Retrofit	June 1, 2010	Nov. 1, 2014
* 80029	407	X	Disadvantaged Business Enterprise Participation	Sept. 1, 2000	July 2, 2016
80363	418	X	Engineer's Field Office	April 1, 2016	
80358	419	X	Equal Employment Opportunity	April 1, 2015	
80364	423	X	Errata for the 2016 Standard Specifications	April 1, 2016	
80229			Fuel Cost Adjustment	April 1, 2009	July 1, 2015
80304			Grooving for Recessed Pavement Markings	Nov. 1, 2012	Aug. 1, 2014
80246	427	X	Hot-Mix Asphalt – Density Testing of Longitudinal Joints	Jan. 1, 2010	April 1, 2016
80347			Hot-Mix Asphalt – Pay for Performance Using Percent Within Limits – Jobsite Sampling	Nov. 1, 2014	April 1, 2016
* 80367	428	X	Light Poles	July 1, 2016	
* 80368			Light Tower	July 1, 2016	
80336			Longitudinal Joint and Crack Patching	April 1, 2014	April 1, 2016
* 80369	429	X	Mast Arm Assembly and Pole	July 1, 2016	
80045			Material Transfer Device	June 15, 1999	Aug. 1, 2014
80342	430	X	Mechanical Side Tie Bar Inserter	Aug. 1, 2014	April 1, 2016
* 80370			Mechanical Splicers	July 1, 2016	
80165			Moisture Cured Urethane Paint System	Nov. 1, 2006	Jan. 1, 2010
80361			Overhead Sign Structures Certification of Metal Fabricator	Nov. 1, 2015	April 1, 2016
80349			Pavement Marking Blackout Tape	Nov. 1, 2014	April 1, 2016
* 80371	432	X	Pavement Marking Removal	July 1, 2016	
80298			Pavement Marking Tape Type IV	April 1, 2012	April 1, 2016
80365			Pedestrian Push-Button	April 1, 2016	
* 80372			Preventive Maintenance – Bituminous Surface Treatment (A-1)	Jan. 1, 2009	July 1, 2016
* 80373			Preventive Maintenance – Cape Seal	Jan. 1, 2009	July 1, 2016
* 80374			Preventive Maintenance – Micro-Surfacing	Jan. 1, 2009	July 1, 2016
* 80375			Preventive Maintenance – Slurry Seal	Jan. 1, 2009	July 1, 2016
* 80359			Portland Cement Concrete Bridge Deck Curing	April 1, 2015	July 1, 2016
80353			Portland Cement Concrete Inlay or Overlay	Jan. 1, 2015	April 1, 2016

80338			Portland Cement Concrete Partial Depth Hot-Mix Asphalt Patching	April 1, 2014	April 1, 2016
80300			Preformed Plastic Pavement Marking Type D - Inlaid	April 1, 2012	April 1, 2016
80328	433	X	Progress Payments	Nov. 2, 2013	
34261			Railroad Protective Liability Insurance	Dec. 1, 1986	Jan. 1, 2006
80157	434	X	Railroad Protective Liability Insurance (5 and 10)	Jan. 1, 2006	
80306	436	X	Reclaimed Asphalt Pavement (RAP) and Reclaimed Asphalt Shingles (RAS)	Nov. 1, 2012	April 1, 2016
80340			Speed Display Trailer	April 2, 2014	April 1, 2016
80127	446	X	Steel Cost Adjustment	April 2, 2004	July 1, 2015
80362	450	X	Steel Slag in Trench Backfill	Jan. 1, 2016	
80317			Surface Testing of Hot-Mix Asphalt Overlays	Jan. 1, 2013	April 1, 2016
80355			Temporary Concrete Barrier	Jan. 1, 2015	July 1, 2015
20338	451	X	Training Special Provisions	Oct. 15, 1975	
80318			Traversable Pipe Grate	Jan. 1, 2013	April 1, 2014
80288	454	X	Warm Mix Asphalt	Jan. 1, 2012	April 1, 2016
80302	456	X	Weekly DBE Trucking Reports	June 2, 2012	April 2, 2015
80289			Wet Reflective Thermoplastic Pavement Marking	Jan. 1, 2012	
80071			Working Days	Jan. 1, 2002	

The following special provisions and recurring special provisions are in the 2016 Standard Specifications.

<u>File Name</u>	<u>Special Provision Title</u>	<u>New Location</u>	<u>Effective</u>	<u>Revised</u>
80240	Above Grade Inlet Protection	Articles 280.02, 280.04, and 1081.15	July 1, 2009	Jan. 1, 2012
80310	Coated Galvanized Steel Conduit	Articles 811.03	Jan. 1, 2013	Jan. 1, 2015
80341	Coated Nonmetallic Conduit	Article 1088.01	Aug. 1, 2014	Jan. 1, 2015
80294	Concrete Box Culverts with Skews ≤ 30 Degrees Regardless of Design Fill and Skews > 30 Degrees With Design Fills > 5 Feet	Article 540.04	April 1, 2012	April 1, 2014
80334	Concrete Gutter, Curb, Median, and Paved Ditch	Articles 606.02, 606.07, and 1050.04	April, 2014	Aug. 1, 2014
80335	Contract Claims	Article 109.09	April 1, 2014	
Chk Sht #27	English Substitution of Metric Reinforcement Bars	Article 508.09	April 1, 1996	Jan. 1, 2011
80265	Friction Aggregate	Articles 1004.01 and 1004.03	Jan. 1, 2011	Nov. 1, 2014
80329	Glare Screen	Sections 638 and 1085	Jan. 1, 2014	
Chk Sht #20	Guardrail and Barrier Wall Delineation	Sections 635, 725, 782, and 1097	Dec. 15, 1993	Jan. 1, 2012
80322	Hot-Mix Asphalt – Mixture Design Composition and Volumetric Requirements	Sections 312, 355, 406, 407, 442, 482, 601, 1003, 1004, 1030, and 1102	Nov. 1, 2013	Nov. 1, 2014
80323	Hot-Mix Asphalt – Mixture Design Verification and Production	Sections 406, 1030, and 1102	Nov. 1, 2013	Nov. 1, 2014
80348	Hot-Mix Asphalt – Prime Coat	Sections 403, 406, 407, 408, 1032, and 1102	Nov. 1, 2014	
80315	Insertion Lining of Culverts	Sections 543 and 1029	Jan. 1, 2013	Nov. 1, 2013
80351	Light Tower	Article 1069.08	Jan. 1, 2015	
80324	LRFD Pipe Culvert Burial Tables	Sections 542 and 1040	Nov. 1, 2013	April 1, 2015
80325	LRFD Storm Sewer Burial Tables	Sections 550 and 1040	Nov. 1, 2013	April 1, 2015
80337	Paved Shoulder Removal	Article 440.07	April 1, 2014	
80254	Pavement Patching	Article 701.17	Jan. 1, 2010	
80352	Pavement Striping – Symbols	Article 780.14	Jan. 1, 2015	
Chk Sht #19	Pipe Underdrains	Section 601 and Articles 1003.01, 1003.04, 1004.05, 1040.06, and 1080.05	Sept. 9, 1987	Jan. 1, 2007

<u>File Name</u>	<u>Special Provision Title</u>	<u>New Location</u>	<u>Effective</u>	<u>Revised</u>
80343	Precast Concrete Handhole	Articles 814.02, 814.03, and 1042.17	Aug. 1, 2014	
80350	Retroreflective Sheeting for Highway Signs	Article 1091.03	Nov. 1, 2014	
80327	Reinforcement Bars	Section 508 and Articles 421.04, 442.06, 1006.10	Nov. 1, 2013	
80344	Rigid Metal Conduit	Article 1088.01	Aug. 1, 2014	
80354	Sidewalk, Corner, or Crosswalk Closure	Article 1106.02	Jan. 1, 2015	April 1, 2015
80301	Tracking the Use of Pesticides	Article 107.23	Aug. 1, 2012	
80356	Traffic Barrier Terminals Type 6 or 6B	Article 631.02	Jan. 1, 2015	
80345	Underpass Luminaire	Articles 821.06 and 1067.04	Aug. 1, 2014	April 1, 2015
80354	Urban Half Road Closure with Mountable Median	Articles 701.18, 701.19, and 701.20	Jan. 1, 2015	July 1, 2015
80346	Waterway Obstruction Warning Luminaire	Article 1067.07	Aug. 1, 2014	April 1, 2015

The following special provisions require additional information from the designer. The additional information needs to be included in a separate document attached to this check sheet. The Project Development and Implementation section will then include the information in the applicable special provision. The Special Provisions are:

- Bridge Demolition Debris
- Building Removal-Case I
- Building Removal-Case II
- Building Removal-Case III
- Building Removal-Case IV
- Completion Date
- Completion Date Plus Working Days
- DBE Participation
- Material Transfer Device
- Railroad Protective Liability Insurance
- Training Special Provisions
- Working Days

TECHNICAL SPECIFICATIONS

The following technical specifications supplement the “Standard Specifications for Road and Bridge Construction” adopted April 1, 2016, the latest edition of the “Illinois Manual on Uniform Traffic Control Devices for Streets and Highways” in effect on the date of invitation for bids, the “Manual of Test Procedures for Materials” in effect on the date of invitation for bids, the “Supplemental Specifications and Recurring Special Provisions” indicated on the Check Sheet included herein, the “Bureau of Design & Environment (BDE) Special Provisions” indicated on the Check Sheet included herein, and the latest edition of the “Standard Specifications for Water and Sewer Construction in Illinois” excluding conflicting portions of “Division I General Requirements and Covenants”, which apply to and govern the construction of the project improvements, Section No. 15-00304-02-PV, in the City of Champaign, Champaign County, and in case of conflict with any part or parts of said Specifications, the said Technical Provisions shall take precedence and shall govern.

LOCATION AND DESCRIPTION OF WORK

The proposed roadway improvements are part of the MCORE Project which consists of Green Street, White Street, and Wright Street in the City of Champaign, Champaign County, Illinois. The proposed improvements for MCORE Project 2 commence near the intersection of Neil Street and Green Street and proceed in an easterly direction for a distance of 3,918.29 feet to the intersection of Fourth Street. The proposed improvements for MCORE Project 3 commence near the intersection of Second Street and White Street and proceed in an easterly direction for a distance of 2,895 feet to the intersection of Wright Street and on Wright Street commencing near the intersection of Springfield Avenue and Wright Street and proceeding in a northerly direction for a distance of 670 feet to the intersection of White Street.

The work under this contract shall consist of the construction of:

- Grading and subgrade modifications for proposed roadway reconstruction;
- Portland cement concrete pavement over aggregate base course;
- Hot-Mix asphalt overlay atop Portland cement concrete pavement;
- Combination concrete curb and gutters;
- Storm Sewers, pipe underdrains and associated storm drainage structures;
- Portland cement concrete sidewalk and driveway pavements;
- Streetscape and landscaping elements;
- Roadway and pedestrian lighting;
- Proposed utilities including water mains, water services and sanitary sewers;
- Pavement markings;
- Various removals, excavations, embankment construction, landscaping and other work necessary to complete the construction as shown in the plans and required by the specifications.

The work shall include all labor, materials, tools and equipment necessary for the proper execution and completion of the work as shown in the plans and as specified. It shall also include all work not specifically mentioned but which is reasonably and properly inferable and necessary for the completion of the work.

PRE-BID MEETING

A pre-bid meeting will be held at the Clark Dietz office, 125 West Church Street, Champaign, IL 61820, on July 12, 2016, at 11:00 am. While attending is not mandatory, it is recommended that all bidders attend. Subcontractors are welcome to attend. As project completion is time sensitive, this meeting will serve to discuss and clarify the construction requirements.

PROJECT COMPLETION DATE/TIME OF THE ESSENCE

Time is an essential element of the Contract and the Engineer will be monitoring the Contractor's progress toward completion. The assessment of liquidated damages in accordance with Article 108.09 of the Standard Specifications shall be defined with respect to the following substantial completion dates and final completion dates for the project. After the final completion date, the Contractor will be allowed additional working days to complete the project as described herein.

Substantial Completion Date (Stage 1A and 1B – Green Street and White Street)

The construction work for Stages 1A and 1B, located on Green Street (Project 2) and White Street (Project 3) of the project shall commence on **Monday, September 12, 2016 or ten (10) calendar days after the execution of the contract**, whichever is earlier, unless a delayed start is granted by the Engineer. There will be no changes in the substantial completion date regardless of the actual start date. Stages 1A and 1B located on Green Street (Project 2) and White Street (Project 3) shall be substantially complete by midnight **Friday, December 16, 2016**. Construction operations to be performed during this time period shall include all work necessary to complete all removals; install underground utilities and complete utility adjustments; construct all pavements, curbs, sidewalks, lighting, pavement marking, signage and transit amenities as shown in the plans, and other work necessary to re-open the road, bike lanes, transit platforms and sidewalk to traffic. All roads must be open to traffic during winter shut down periods. The proposed traffic signal equipment for the intersections of Green Street & First Street (Project 2) and White Street & Fourth Street (Project 3) may be installed after Friday, December 16, 2016 as directed by the Engineer. These intersections shall operate under all-way stop control until the proposed traffic signal equipment is installed and operational. If, in the opinion of the Engineer, all of the work or any portion thereof is in an acceptable condition for travel prior to the substantially completion date, the roadway shall be opened to traffic as directed by the Engineer. Opening of the roadway to traffic shall be in accordance with Article 107.29 of the Standard Specifications. Any additional costs, including traffic control, associated with completing the construction work while the road is opened to traffic shall be reflected in the Contractor's unit bid prices. **The full amount of liquidated damages for the complete project's**

original contract amount as specified in Article 108.09 of the Standard Specifications shall be assessed per calendar day in accordance with Article 108.09 should the Contractor fail to complete the specified work on or before midnight Friday, December 16, 2016.

Substantial Completion Date (Stage 3A and 3B – Wright Street)

The construction work for Stages 3A and 3B, located on Wright Street (Project 3), of the project shall not commence until **Monday, May 15, 2017**, after the University of Illinois Commencement Ceremony weekend, unless an earlier start is granted by the Engineer. Stages 3A and 3B located on Wright Street (Project 3) shall be substantially complete by midnight **Friday, August 11, 2017**. Construction operations to be performed during this time period shall include all work necessary to complete all removals; install underground utilities and complete utility adjustments; construct all pavements, curbs, sidewalks, lighting, pavement marking, signage and transit amenities as shown in the plans, and other work necessary to re-open the road, bike lanes, transit platforms and sidewalk to traffic. If, in the opinion of the Engineer, all of the work or any portion thereof is in an acceptable condition for travel prior to the substantially completion date, the roadway shall be opened to traffic as directed by the Engineer. Opening of the roadway to traffic shall be in accordance with Article 107.29 of the Standard Specifications. Any additional costs, including traffic control, associated with completing the construction work while the road is opened to traffic shall be reflected in the Contractor's unit bid prices. **The full amount of liquidated damages for the complete project's original contract amount as specified in Article 108.09 of the Standard Specifications shall be assessed per calendar day in accordance with Article 108.09 should the Contractor fail to complete the specified work on or before midnight Friday, August 11, 2017.**

Final Completion Date Plus Working Days

All remaining construction work for the project shall be completed by midnight **Friday, November 17, 2017** with the exception of proposed landscape plantings as defined herein. Completed construction work shall include all major items of work, cleanup work, signage, pavement markings and punch list items so that the roadways can be opened to normal traffic. It is the City of Champaign's intent that all major items of work as specified in the contract will be completed on or before the final completion date. If, in the opinion of the Engineer, all of the work or any portion thereof is in an acceptable condition for normal traffic operation prior to the completion date, the roadways shall be opened as directed by the Engineer. Opening of the roadways to traffic shall be in accordance with Article 107.29 of the Standard Specifications. Any additional costs, including traffic control, associated with completing the construction work while the road is opened to traffic shall be reflected in the Contractor's unit bid prices. **The full amount of liquidated damages for the complete project's original contract amount as specified in Article 108.09 of the Standard Specifications shall be assessed per calendar day in accordance with Article 108.09 should the Contractor fail to complete the specified work on or before midnight Friday, November 17, 2017.**

The provisions for the completion date shall be as set forth in Section 108 of the Standard Specifications. All applicable provisions of Section 108 shall apply.

The Contractor shall complete off-the-road proposed landscaping items which require spring time only planting within **45 Working Days** of the final completion date. Working days shall be accordance with Article 108.04 of the Standard Specifications. The Contractor shall complete the said landscaping items, all cleanup work and final punch list items as determined by the Engineer within the specified working days. **The full amount of liquidated damages for the complete project's original contract amount as specified in Article 108.09 of the Standard Specifications shall be assessed per calendar day in accordance with Article 108.09 should the Contractor fail to complete the specified work on or before the 45 Working Days.**

PUBLIC INFORMATION MEETING CONDUCTED BY THE CONTRACTOR

A public information meeting will be held for this project prior to the start of construction. The Contractor shall schedule the meeting and advertise its date, time, and location in all local newspapers and media outlets in the City of Champaign. The Contractor and the City of Champaign shall conduct the meeting jointly. The Contractor shall have a representative at the meeting to answer questions concerning scheduling, the nature of work to be performed, and any other issues that may arise. The Contractor shall secure the meeting facility, pay for any facility rental fees and provide appropriate liability insurance. In addition to conducting the public information meeting, the Contractor shall also notify all residents and property owners adjacent to the project limits of the meeting. A mailing list will be provided to the Contractor by the City of Champaign. The cost for conducting this meeting and contacting residents and property owners shall not be paid for separately, but shall be considered included with the various traffic control items contained herein.

COMMITMENTS

There are four (4) applicable commitments made for this project as described in the Phase I Project Development Report.

- a) The Preliminary Site Investigations (PSI) will be completed before the project is included on a letting. PSI Report is available from the City of Champaign.
- b) A 404 permit will be secured before the project is included on a letting.
- c) Special conditions for access to properties during construction will be included in the construction documents. Provisions will be included to require communications with property owners throughout the construction process. Mail delivery is done by carrier and pedestrian access will be maintained throughout the project.
- d) Final Champaign-Urbana Mass Transit District (CUMTD) route detours will be determined before the project is included on a letting.

SEQUENCE OF CONSTRUCTION

See the Traffic Control Plans for the suggested sequence of construction and “TRAFFIC CONTROL AND PROTECTION, (SPECIAL)” specification for special event information. Due to the magnitude of the project and the utility facilities to be adjusted or relocated it may be necessary for the Contractor to sequence the work to allow the utility companies time to complete their work.

The construction work for Stage 2, located on Green Street (Project 2) and White Street (Project 3) shall only start after the completion of Stage 1 as described herein or as directed by the Engineer. All roads must be open to traffic during winter shut down periods. See “PROJECT COMPLETION DATE/TIME OF THE ESSENCE” specification for substantial completion date information.

The construction work for Stage 3, located on Green Street (Project 2) shall only start after the completion of Illinois Marathon special event as described herein or as directed by the Engineer. The Contractor will be allowed to work on Stage 2 and Stage 3 concurrently as approved by the Engineer. See “PROJECT COMPLETION DATE/TIME OF THE ESSENCE” specification for substantial completion date information.

The Contractor should plan the construction sequence so that no work will be started that could not be completed prior to any winter shut down period. Open holes, trenches or drop offs adjacent to traffic lanes, entrances or sidewalks will not be permitted while the work is suspended.

The Contractor is advised that properties within the project limits have move-in days that correspond with the University of Illinois schedule. During the month of August, the Contractor shall be required to coordinate and maintain full access to these properties within the work area and limit construction activities within temporary easement areas as directed by the Engineer. Special efforts may be required by the Contractor to assure that roadways and pedestrian areas are clean and well maintained and that areas around the construction zones are safe for the public. Any additional work required to accommodate the move-in days will not be paid separately but shall be included in the cost of TRAFFIC CONTROL AND PROTECTION, (SPECIAL), and no additional compensation will be allowed.

The Contractor may be allowed to perform work between the hours of 10:00 p.m. and 7:00 a.m. as approved by the City of Champaign. The Contractor shall provide a written request to the City of Champaign a minimum of 72 hours in advance of the operations planned outside of normal working hours. The written request shall include specific items of work to be performed, a detailed plan to execute the said work, and the anticipated hours of operation. Scheduling of all subcontractors involved with operations outside of normal working hours shall also conform to these requirements.

X7010216 TRAFFIC CONTROL AND PROTECTION, (SPECIAL)
40201000 AGGREGATE FOR TEMPORARY ACCESS
70800105 TEMPORARY WATER FILLED BARRIER
Z0007430 TEMPORARY SIDEWALK

Description

This work shall consist of providing the necessary traffic control personnel and devices and the installation, maintenance, relocation and removal of these devices during construction of the improvement. The City of Champaign will be responsible for notifying the public, the United States Postal Service, the Champaign-Urbana Mass Transit District and the emergency service agencies for road closures and changes in the traffic control and maintenance of traffic plans.

Traffic Control Plan

Traffic control shall be in accordance with the plans, the applicable sections of the Standard Specifications and Supplemental Specifications, the applicable guidelines contained in the "Illinois Manual on Uniform Traffic Control Devices for Streets and Highways", these Special Provisions, and the special details and Highway Standards contained herein and in the plans.

Special attention is called to Articles 107.09, 107.14, 107.15, 107.16, 107.25, and applicable Sections 701, 702 and 703 of the Standard Specifications, the following Highway Standards, listed Supplemental Specifications and Recurring Special Provisions and Special Plan Details and Notations.

Highway Standards

701006, 701301, 701311, 701501, 701502, 701602, 701701, 701801, 701901, BLR 21, and BLR 22

Special Provisions

Check Sheet # 21	Nighttime Inspection of Roadway Lighting
LRS 3	Work Zone Traffic Control Surveillance
LRS 4	Flaggers in Work Zones
LR 702	Construction and Maintenance Signs

Plan Details

Traffic Control Plans

Maintenance of Traffic

Road closures and the conveyance of through and local traffic within and around the construction zone shall be provided for in accordance with the Plan Details noted above and the use of the above referenced Highway Standards as directed by the Engineer. Except as otherwise provided herein, the Contractor shall provide at least one entrance/exit point to the commercial properties at all times.

The Contractor shall be permitted to close Green Street, White Street, and the adjacent cross streets to all traffic in stages as shown on the Traffic Control Plans. The Contractor shall maintain at least one lane of traffic on First Street, Fourth Street, and Wright Street as shown on the Traffic Control Plans.

It is the City of Champaign's intent to minimize the impacts to local traffic patterns throughout the various stages of construction. The conveyance of through and local traffic may require the use of temporary water filled barriers as directed by the Engineer. It is hereby understood that the City of Champaign reserves the right to delete any or all of this pay item from the contract. Should the City of Champaign delete any or all of this pay item from the contract, the Contractor will receive no remuneration for the deleted item. The cost of furnishing, installing, filling, maintaining, relocating, stockpiling, emptying, and removing the temporary water filled barriers shall be considered as included in the cost of TEMPORARY WATER FILLED BARRIER. Relocation of salvaged temporary water filled barrier within each work zone or between construction stages will not be paid for separately but shall be considered as included in the initial cost per foot of barrier installation. An estimated quantity of temporary water filled barrier has been included in the plans for use in the conveyance of local traffic.

With the approval of the Engineer, the Contractor may modify the suggested construction sequence and attendant traffic control procedures as shown. The Contractor shall submit his proposed sequence of operations and any necessary revisions to attendant traffic control to the Engineer for approval before actual construction operations begin.

Driveways

Except where the plans expressly authorize temporary complete closures, the Contractor shall keep driveways open to local traffic by keeping at least half of the width of said driveway open or by providing access at a temporary location, as approved by the Engineer. The Contractor shall provide and maintain access to commercial and private properties abutting the roadway being improved in accordance with Article 107.09 of the Standard Specifications. Access to commercial property shall, at no time, be shut off completely except as expressly authorized in the plans. At no time shall a driveway be closed for more than 1 hour. An estimated quantity of Aggregate for Temporary Access has been included in the plans for use in the conveyance of local traffic and the provision of temporary access. Furnishing and placing the aggregate material, as well as compaction, removal, and subsequent disposal of the material in accordance with Article 202.03 of the Standard Specifications, will not be paid for separately, but shall be considered as included in the cost of AGGREGATE FOR TEMPORARY ACCESS.

Concurrent construction of driveway entrances will be required along with mainline pavement construction to the limits of each stage of the project. This is necessary in order to accommodate vehicle turning movements in and out of the driveways after completion of their construction, thus eliminating the need for closure of these facilities twice; i.e., once for mainline pavement construction and again for the entrance or side road construction.

At locations designated by the Engineer it may be necessary to construct pavements, driveways or sidewalks using high-early strength concrete so that the facilities can be put back into service as soon as possible. The high-early strength concrete shall meet the requirements of Article 1020.04 of the Standard Specifications for Class PP-4 concrete. The cost of this work including the high-early strength concrete will not be paid for separately but shall be considered as included in the cost of TRAFFIC CONTROL AND PROTECTION, (SPECIAL) and no additional compensation will be allowed.

Removing and Resetting Traffic Signs

This work shall consist of the removal, relocation, and resetting of traffic signs which interfere with construction operations. This work shall also include the removal, relocation, and resetting of existing wood signs, delineators, and other miscellaneous signs which interfere with construction operations. This work shall be performed in accordance with the applicable portions of Article 107.25 of the Standard Specifications and as directed by the Engineer. The Contractor shall remove, temporarily relocate and/or permanently reset existing signs which interfere with the construction operations. This work will not be paid for separately but shall be included in the cost of TRAFFIC CONTROL AND PROTECTION, (SPECIAL). The Engineer will determine which signs will be removed, temporarily relocated, and permanently reset. Before the completion of each construction stage the Contractor shall install traffic and street name signs in accordance with the pavement marking and signing plans.

Traffic Control Surveillance

Traffic control surveillance will be required, but will not be paid for separately on this project. The special provision check sheet LRS 3 "Work Zone Traffic Control Surveillance" will apply for the inspection of traffic control devices on this project.

Quality of Traffic Control Devices

Traffic Control Devices include signs and their supports, signals, pavement markings, barricades with sand bags, channelizing devices, warning lights, arrow boards, flaggers, or any device used for the purpose of regulating, detouring, warning, or guiding traffic through or around the construction zone.

Only signs, barricades, vertical panels, drums, and cones that meet the requirements of the Department's "Quality Standard for Work Zone Traffic Control Devices 2010" shall be used on this project. Copies of this publication are available from the IDOT website under "Resources". At the time of the initial setup or at the time of major stage changes, one-hundred percent (100%) of each type of device (cones, drums, barricades, vertical panels or signs) shall be acceptable as defined by the referenced publication. Throughout the duration of the project, the percentage of acceptable devices may decrease to seventy-five percent (75 %) only as a result of damage and/or deterioration during the course of the work. Work shall not begin until a determination has been made that the traffic control devices meet the quality required in this standard. The Contractor is required to conduct routine inspections of the work site at a frequency that will allow for the prompt replacement of any traffic control device that has become displaced or damaged to the extent that it no longer

conforms to the shape, dimensions, color and operational requirements of the MUTCD and the Traffic Control Standards, or that it no longer presents a neat appearance to motorists. A sufficient quantity of replacement devices, based on vulnerability to damage, shall be readily available to meet this requirement.

Placement of Traffic Control Signs and Devices

The Contractor shall be responsible for the proper location, installation, and arrangement of all traffic advance warning signs during construction operations in order to keep lane assignment consistent with barricade placement at all times. The Contractor shall immediately remove, cover, or turn from the view of the motorists all traffic control devices which are inconsistent with detour or lane alignment patterns and conflicting conditions during the transition from one construction stage to another. When the Contractor elects to cover conflicting or inappropriate signing materials used, he/she shall totally block out reflectivity of the sign and shall cover the entire sign. The method used for covering the signing shall meet the approval of the Engineer.

The Contractor shall coordinate all traffic control work on this project with adjoining or overlapping projects, including barricade placement necessary to provide a uniform traffic detour pattern. When directed by the Engineer, the Contractor shall remove all traffic control devices that were furnished, installed, and maintained by him/her under this contract, and such devices shall remain the property of the Contractor. All traffic control devices shall remain in place until specific authorization for relocation or removal is received from the Engineer.

The Contractor shall ensure that all traffic control devices installed by him/her are operational, functional, and effective 24 hours a day, including Sundays and holidays.

Solar Powered Changeable Message Signs

Changeable message signs shall be furnished, placed, and maintained in accordance with the Traffic Control Plans and Section 701 of the Standard Specifications. All changeable message signs to be used on this project shall be solar powered. Any additional cost in meeting this requirement shall be considered as included in the cost of TRAFFIC CONTROL AND PROTECTION, (SPECIAL).

Solar Powered Arrow Boards

Arrow boards shall be used as required by the Standards and as directed by the Engineer. All arrow boards to be used on this project shall be solar powered. Any additional cost in meeting this requirement shall be considered as included in the cost of TRAFFIC CONTROL AND PROTECTION, (SPECIAL).

Construction Signs

Construction signs referring to daytime lane closures during working hours shall be removed, covered or turned away from the view of motorists during non-working hours.

Flashing lights shall be used on each approach in advance of the work area, and in accordance with the details shown on the Traffic Control Plans and Standard Drawings.

All provisions of Article 107.25 of the Standard Specifications shall apply except the third paragraph shall be revised to read: “The Contractor shall maintain, furnish, and replace at his/her own expense, any traffic sign or post which has been damaged or lost by the Contractor or a third party.”

Wayfinding or Directional Signage

The Contractor shall be responsible for the proper location, installation, and arrangement of any wayfinding or directional signage as directed by the Engineer. It is the City of Champaign’s intent that wayfinding or directional signage will be utilized to adequately direct the traveling public to specific locations within the project limits. The wayfinding or directional signage may consist of post mounted sheet signs or changeable message boards. The cost of providing, installing, maintaining, relocating, and removing wayfinding or directional signs will not be paid for separately but shall be considered as included in the cost of TRAFFIC CONTROL AND PROTECTION, (SPECIAL). No additional compensation will be allowed.

Placement and Removal of Signs and Barricades

Placement of all signs and barricades shall proceed in the direction of flow of traffic. Removal of all signs and barricades shall start at the end of the construction areas and proceed toward oncoming traffic unless otherwise directed by the Engineer.

Flaggers

Flaggers will not be required for truck or equipment traffic entering or exiting the work zones with the following exceptions:

1. Flaggers will be required as shown on all plan details or highway standards.
2. Truck traffic and all other construction vehicles or equipment shall give right of way to all other vehicular or pedestrian traffic and obey all traffic laws.
3. The Engineer may request that flaggers be provided if he/she determines unsafe conditions exist requiring the use of flaggers. No additional compensation will be allowed for this requirement and the cost shall be considered as included in the cost of TRAFFIC CONTROL AND PROTECTION, (SPECIAL).

Pedestrian Sidewalk Control

The Contractor shall install, maintain, and remove necessary signs, fences, and barricades needed to direct pedestrians to usable sidewalks and walkways during the construction, and as directed by the Engineer. Temporary chain link fences 6 feet tall minimum shall be erected along the edge of sidewalks to prevent pedestrians from entering the work zone as directed by the Engineer. The cost of installing, maintaining, and removing the signs, fences, and barricades shall be considered as included in the cost of TRAFFIC CONTROL AND PROTECTION, (SPECIAL).

At each point of closure, a sufficient number of barricades shall be used to completely close the sidewalk to pedestrian movement. Where construction activities involve sidewalks on both sides of the street, the work shall be staged so that both sidewalks are not out of service at the same time.

Temporary Sidewalks

It is the City's intention to maintain pedestrian access through the project site during construction of the improvement. The Contractor may restrict pedestrian access to the project site during working hours by utilizing Highway Standard 701801. During non-working hours the Contractor shall allow for pedestrian access through the project site by constructing temporary sidewalks at locations where existing sidewalks have been removed or as directed by the Engineer. The temporary sidewalk shall consist of either Portland cement concrete, 2" inches thick or coarse aggregate gradation CA 6 placed at a compacted depth of 4 inches at locations shown on the plans and as directed by the Engineer. This work, including furnishing and placing the materials, as well as compaction, removal, and subsequent disposal of the material in accordance with Article 202.03 of the Standard Specifications, will not be paid for separately, but shall be considered as included in the cost of TEMPORARY SIDEWALK or AGGREGATE FOR TEMPORARY ACCESS.

Public Safety and Convenience

The Contractor shall provide a telephone number where a responsible individual can be contacted on a 24-hour-a-day basis to receive notification of any deficiencies regarding traffic control and protection. The Contractor shall dispatch personnel, materials and equipment to correct any such deficiencies. The Contractor shall respond to any call from the Engineer or government agencies concerning any request for improving or correcting traffic control devices and begin making the requested repair within **two (2) hours** from the time of notification.

When traveling in lanes open to public traffic, the Contractor's vehicles shall always move with and not against or across the flow of traffic. These vehicles shall enter or leave work areas in a manner which will not be hazardous to, or interfere with traffic and shall not park or stop except within areas designated by the Engineer.

Personal vehicles will not be allowed to park within the right-of-way. The Contractor shall provide for off-site parking of his/her personal vehicles.

The Contractor shall maintain entrances and side roads along the proposed improvement. Interference with traffic movements and inconvenience to owners of abutting property and the public shall be kept to a minimum. Any delays or inconveniences caused to the Contractor by complying with these requirements shall be considered as included in the cost of the contract, and no additional compensation will be allowed.

Compliance with Parking Regulations

The work to be performed under this contract and within the City of Champaign jurisdiction is exempted by the Municipal Code of the City of Champaign, Section 33-18, from certain regulations contained in Chapter 33 of the Municipal Code. The language of this section says:

“The provisions of this Chapter regulating the movement and parking of vehicles shall not apply to equipment or vehicles while actively engaged in installing, repairing or otherwise improving streets or street pavements.”

This is interpreted to mean that while actual construction work is in progress, vehicles necessary for the production of the work may temporarily park or stop in locations in the immediate vicinity of the work site. Vehicles and equipment include those vehicles and equipment owned or leased by the Contractor and his/her employees which are actively used in the construction activity. This exemption does not apply to any vehicle or equipment which is not essential to the actual progress of the construction. An example of a vehicle not essential to the actual progress of the construction is a vehicle owned by the employee of the Contractor used to transport the employee to the job site or his/her home but not used to carry tools actively used on the project site. These vehicles must be parked according to posted regulations and are subject to any meter fees.

Construction Staging Requirements

Lane Closures and the conveyance of local traffic within and around the construction zone shall be provided for in accordance with the above referenced Highway Standards and as directed by the Engineer. With the approval of the Engineer, the Contractor may make modifications to the proposed Traffic Control Plans. The Contractor shall submit his/her proposed sequence of operations, and any necessary revisions to the attendant traffic control plan, to the Engineer for approval before actual construction operations begin.

All traffic control devices and barricades throughout the project shall remain in place until the entire project is substantially complete, or as otherwise directed by the Engineer.

All existing traffic signal heads that conflict with the traffic patterns required by the Traffic Control Plans shall be bagged as directed by the Engineer. All proposed traffic signal heads shall be bagged until the scheduled traffic signal turn on or as otherwise directed by the Engineer.

Brooming of Roadway

All traffic lanes which are closed to through traffic during construction shall be broomed or swept free of all loose gravel or construction debris before the traffic lane is reopened to traffic. All roadway surface conditions shall be approved by the Engineer before they are opened to traffic. This work will not be paid for separately but shall be considered as included in the cost of TRAFFIC CONTROL AND PROTECTION, (SPECIAL).

Brooming of Pedestrian Routes

All pedestrian routes which are closed during construction operations shall be broomed or swept free of all loose gravel or construction debris before the pedestrian routes are reopened. All pedestrian route surface conditions shall be approved by the Engineer before they are opened. This work will not be paid for separately but shall be considered as included in the cost of TRAFFIC CONTROL AND PROTECTION, (SPECIAL).

Special Events

Certain events and activities will take place in or near the project area which may affect construction activities. A list of these events and approximate dates are as follows:

2016 Events (subject to change)

- Friday, June 10th – Saturday, June 11th, Summer Session 1 Final Exams
- Monday, June 13th, Summer Session 2 Classes Begin

- Monday, July 4th, Independence Day & Freedom Celebration

- Friday, August 5th – Saturday, August 6th, Summer Session 2 Final Exams
- Thursday, August 18th – Saturday, August 20th, Move-in Days
- Monday, August 22nd, Fall Semester Classes Begin
- Saturday, August 27th, Football Home Game

- Monday, September 5th, Labor Day
- Wednesday, September 7th – Thursday, September 8th, ECS Career Fair
- Saturday, September 10th, Football Home Game
- Wednesday, September 14th – Thursday, September 15th, Business Career Fair
- Monday, September 19th – Tuesday, September 20th, Engineering Employment EXPO
- Wednesday, September 21st – Sunday, September 25th, Pygmalion Music Festival
- Saturday September 24th, Football Home Game

- Saturday, October 1st, Football Home Game
- Saturday, October 22nd, Football Home Game
- Sunday, October 23rd – Saturday, October 29th, Homecoming Week
- Friday, October 28th, Basketball Home Game

- Wednesday, November 2nd, Basketball Home Game
- Sunday, November 6th, Basketball Home Game
- Friday, November 11th, Basketball Home Game
- Saturday, November 12th, Football Home Game
- Sunday, November 20th, Basketball Home Game
- Saturday, November 19th – Sunday, November 27th, Thanksgiving Break
- Monday, November 28th, Fall Semester Classes Resume
- Wednesday, November 30th, Basketball Home Game

- Sunday, December 4th, Basketball Home Game
- Friday, December 9th – Friday, December 16th, Final Exams
- Wednesday, December 14th, Basketball Home Game
- Sunday, December 18th, Basketball Home Game
- Saturday, December 31st, Basketball Home Game

2017 Events (subject to change)

- Saturday, January 7th, Basketball Home Game
- Wednesday, January 11th, Basketball Home Game
- Tuesday, January 17th, Spring Semester Classes Begin
- Sunday, January 22nd, Basketball Home Game
- Wednesday, January 25th, Basketball Home Game

- Saturday, February 4th, Basketball Home Game
- Wednesday, February 8th, Basketball Home Game
- Sunday, February 19th, Basketball Home Game

- Wednesday, March 1st, Basketball Home Game
- Friday, March 3rd – Saturday, March 4th, Unofficial St Patrick's Day
- Friday, March 10th – Saturday, March 11th, Engineering Open House
- Saturday, March 18th – Sunday, March 26th, Spring Break
- Monday, March 27th, Classes Resume

- Friday, April 28th, Illinois Marathon 5K and 10K
- Saturday, April 29th, Illinois Full and Half Marathons

- Friday, May 5th – Friday, May 12th, Final Exams
- Sunday, May 14th, Commencement
- Monday, May 15th, Summer Session 1 Classes Begin
- Monday, May 29th, Memorial Day

- Friday, June 9th – Saturday, June 10th, Summer Session 1 Final Exams
- Monday, June 12th, Summer Session 2 Classes Begin

- Tuesday, July 4th, Independence Day & Freedom Celebration

- Friday, August 4th – Saturday, August 5th, Summer Session 2 Final Exams
- Monday, August 28th, Instruction Begins

- Monday, September 4th, Labor Day, No Classes

- October (*more information to be provided by the Engineer*)

- Saturday, November 18th – Sunday, November 26th, Thanksgiving Break
- Monday, November 27th, Classes Resume

- December (*more information to be provided by the Engineer*)

Special provisions may be included herein to provide for these activities. These events are planned to take place concurrently with the construction activities. The Contractor will be informed of these events at the preconstruction meeting so planning and coordination can take place prior to the event as necessary. Special efforts may be required by the Contractor prior to these events to assure that roadways and pedestrian areas are clean and well maintained and that areas around the construction zones are safe for the public. Any additional work required to prepare and coordinate construction activities around these events will not be paid separately but shall be considered as included in the cost of TRAFFIC CONTROL AND PROTECTION, (SPECIAL), and no additional compensation will be allowed.

Opening Lanes for Sporting Events

No broken pavement, open holes, trenches, barricades, cones, or drums will remain on or adjacent to the traveled way and all lanes shall be opened to traffic during any Home Football Period, except where major roadway reconstruction requiring overnight lane closures would make it impractical. Patching and resurfacing are not considered major roadway reconstruction.

Home Football Period: The Home Football Period shall apply for University of Illinois football games to be played at Memorial Stadium at the University of Illinois at Urbana-Champaign.

Day of Football Game	Length of Home Football Period
Tuesday, Wednesday or Thursday	3:00 PM on the day before the game until 6:00 AM on the day after the game
Friday	3:00 PM on Thursday until 12:01 AM Monday
Saturday	3:00 PM on Friday until 12:01 AM Monday
Sunday	3:00 PM on Friday until 6:00 AM Monday
Monday	12:01 AM on Saturday until 6:00 AM Tuesday

Should the Home Football Period for two different games overlap, then both shall apply and shall be considered as one continuous period.

Measurement and Payment

All work prescribed and referenced herein shall be measured for payment at the contract lump sum price for TRAFFIC CONTROL AND PROTECTION, (SPECIAL). This price shall be considered payment in full for all labor, materials, transportation, handling, and incidental work necessary to furnish, install, relocate, maintain, and remove all traffic control devices as required by the Traffic Control Plans and as directed and approved by the Engineer, for the duration of the contract. No separate payment will be made for complying with the provisions of Standard 701006, 701301, 701311, 701501, 701502, 701602, 701701, 701801, 701901, BLR 21, and BLR 22. Article 701.20 of the Standard Specifications is revised in that no additional payment will be made for furnishing, installing, maintaining, and removing additional traffic control devices or signs from those shown on the plans or as directed by the Engineer.

The cost of furnishing, placing, compacting, maintaining, removing, and disposing of coarse aggregate used for temporary vehicle or pedestrian access will be paid for at the contract unit price per ton for AGGREGATE FOR TEMPORARY ACCESS.

The cost of furnishing, installing, filling, maintaining, relocating, stockpiling, emptying, and removing the temporary water filled barriers will be paid for at the contract unit price per foot for TEMPORARY WATER FILLED BARRIER. Relocation of salvaged temporary water filled barrier within each work zone or between construction stages will not be paid for separately but shall be considered as included in the initial cost per foot of barrier installation.

The cost of constructing, maintaining, removing, and disposing of Portland cement concrete for temporary sidewalks will be paid for at the contract unit price per square foot for TEMPORARY SIDEWALK.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

This work shall be done in accordance with the “National Pollutant Discharge Elimination System Permit” (NPDES) requirements. The project is covered by the implementing agency’s MS4 permit number ILR400313; a separate ILR 10 permit is required. The City of Champaign will acquire this permit prior to the start of construction. The Contractor will be required to comply with all terms of the permit. As a part of the requirements the Contractor will be required to fill out the “Contractor Certification Statement”, on form number BDE 2342 and submit it to the Engineer at the pre-construction conference. A copy of the form is attached.



Route Green St, White St, and Wright St.	Marked Route FAU 7126 and FAP 808	Section 15-00304-02-PV
Project Number TIG-5181(058)	County Champaign	Contract Number 91540

This plan has been prepared to comply with the provisions of the National Pollutant Discharge Elimination System (NPDES) Permit No. ILR10 (Permit ILR10), issues 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.

Print Name David Clark	Title City Engineer	Agency City of Champaign
Signature 		Date April 29, 2016

I. Site Description

A. Provide a description of the project location (include latitude and longitude):

The project is located in Champaign, IL on Green Street from Neil Street to Fourth Street (Project 2), White Street from Second Street to Wright Street (Project 3) and Wright Street from Springfield Avenue to White Street (Project 3).
 40 DEG 6' 36.77" N / 88 DEG 14' 19.35" W (Project 2)
 40 DEG 6' 51.91" N / 88 DEG 13' 58.01" W (Project 3)

B. Provide a description of the construction activity which is subject of this plan:

The proposed improvement consists of the reconstruction of Green Street and White Street which will include the following:
 - existing pavement, sidewalk, curb and gutter, storm sewer and tree removal
 - proposed concrete and hot-mix asphalt paving, sidewalks and driveways, curb and gutters
 - storm sewers, sanitary sewers, water main
 - roadway lighting and landscaping

C. Provide the estimated duration of this project:

August 2016 to May 2018

D. The total area of the construction site is estimated to be 12 acres.

The total area of the site estimated to be disturbed by excavation, grading or other activities is 11 acres.

E. The following is a weighted average of the runoff coefficient for this project after construction activities are completed:

0.8 (Rational Method)

F. List all soils found within project boundaries. Include map unit name, slope information and erosivity:

The soils are generally clayey loams typical of the area. A geotechnical study and report was performed for the project, approved by IDOT and is available for reference.

G. Provide an aerial extent of wetland acreage at the site:

There are no wetlands within the project limits.

H. Provide a description of potentially erosive areas associated with this project:

Some of the soils have potential for erosion and are being protected by sodding as shown on the plans. Temporary erosion control measures are also being provided as shown on the plans.

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 scopes, etc.):

Excavating and grading for pavements, storm sewers, sidewalks, driveways, topsoil placement and sodding. Side slopes average 1.5% where curb and gutters and paved parkways are located. Side slopes vary from 1.5% to 1:6 where turfed parkways are located.

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 off site 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:

City of Champaign

L. The following is a list of General NPDES ILR40 permittees within whose reporting jurisdiction this project is located.

City of Champaign, Univeristy of Illinois at Urbana-Champaign

M. The following is a list of receiving water(s) and the ultimate receiving water(s) for this site. The location of the receiving waters can be found on the erosion and sediment control plans:

Boneyard Creek

N. Describe areas of the site that are to be protected or remain undisturbed. These areas may include steep slopes, highly erodible soils, streams, stream buffers, specimen trees, natural vegetation, nature preserves, etc.

All work will be limited to defined construction limits within permanent right of ways or temporary construction easements.

O. The following sensitive environmental resources are associated with this project, and may have the potential to be impacted by the proposed development:

- Floodplain
- Wetland Riparian
- Threatened and Endangered Species
- Historic Preservation
- 303(d) Listed receiving waters for suspended solids, turbidity, or siltation
- Receiving waters with Total Maximum Daily Load (TMDL) for sediment, total suspended solids, turbidity, or siltation
- Applicable Federal, Tribal, State or Local Programs
- Other

1. 303(d) Listed receiving waters (fill out this section if checked above):

a. The name(s) of the listed water body, and identification of all pollutants causing impairment:

b. 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:

c. Provide a description of the location(s) of direct discharge from the project site to the 303(d) water body:

d. Provide a description of the location(s) of any dewatering discharges to the MS4 and/or water body:

2. TMDL (fill out this section if checked above)

a. The name(s) of the listed water body:

b. 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:

c. 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 the allocation:

P. The following pollutants of concern will be associated with this construction project:

- | | |
|---|--|
| <input checked="" type="checkbox"/> Soil Sediment | <input checked="" type="checkbox"/> Petroleum (gas, diesel, oil, kerosene, hydraulic oil / fluids) |
| <input checked="" type="checkbox"/> Concrete | <input checked="" type="checkbox"/> Antifreeze / Coolants |
| <input checked="" type="checkbox"/> Concrete Truck waste | <input type="checkbox"/> Waste water from cleaning construction equipment |
| <input checked="" type="checkbox"/> Concrete Curing Compounds | <input type="checkbox"/> Other (specify) _____ |
| <input checked="" type="checkbox"/> Solid waste Debris | <input type="checkbox"/> Other (specify) _____ |
| <input checked="" type="checkbox"/> Paints | <input type="checkbox"/> Other (specify) _____ |
| <input checked="" type="checkbox"/> Solvents | <input type="checkbox"/> Other (specify) _____ |
| <input checked="" type="checkbox"/> Fertilizers / Pesticides | <input type="checkbox"/> 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 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:

- | | |
|---|---|
| <input checked="" type="checkbox"/> Preservation of Mature Vegetation | <input type="checkbox"/> Erosion Control Blanket / Mulching |
| <input type="checkbox"/> Vegetated Buffer Strips | <input checked="" type="checkbox"/> Sodding |
| <input checked="" type="checkbox"/> Protection of Trees | <input checked="" type="checkbox"/> Geotextiles |
| <input checked="" type="checkbox"/> Temporary Erosion Control Seeding | <input type="checkbox"/> Other (specify) _____ |
| <input type="checkbox"/> Temporary Turf (Seeding, Class 7) | <input type="checkbox"/> Other (specify) _____ |
| <input type="checkbox"/> Temporary Mulching | <input type="checkbox"/> Other (specify) _____ |
| <input type="checkbox"/> Permanent Seeding | <input type="checkbox"/> Other (specify) _____ |

Describe how the stabilization practices listed above will be utilized during construction:

All work will be limited to defined construction limits within permanent right of ways or temporary construction easements. The project will be sodded once construction activities allow.

Describe how the stabilization practices listed above will be utilized after construction activities have been completed:

Permanent sodding of disturbed areas will be done to prevent erosion.

- 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.

The following stabilization practices will be used for this project:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Perimeter Erosion Barrier | <input type="checkbox"/> Rock Outlet Protection |
| <input type="checkbox"/> Temporary Ditch Check | <input type="checkbox"/> Riprap |
| <input checked="" type="checkbox"/> Storm Drain Inlet Protection | <input type="checkbox"/> Gabions |
| <input type="checkbox"/> Sediment Trap | <input type="checkbox"/> Slope Mattress |
| <input type="checkbox"/> Temporary Pipe Slope Drain | <input type="checkbox"/> Retaining Walls |
| <input type="checkbox"/> Temporary Sediment Basin | <input type="checkbox"/> Slope Walls |
| <input type="checkbox"/> Temporary Stream Crossing | <input type="checkbox"/> Concrete Revetment Mats |
| <input type="checkbox"/> Stabilized Construction Exits | <input type="checkbox"/> Level Spreaders |
| <input type="checkbox"/> Turf Reinforcement Mats | <input type="checkbox"/> Other (specify) _____ |
| <input type="checkbox"/> Permanent Check Dams | <input type="checkbox"/> Other (specify) _____ |
| <input type="checkbox"/> Permanent Sediment Basin | <input type="checkbox"/> Other (specify) _____ |
| <input type="checkbox"/> Aggregate Ditch | <input type="checkbox"/> Other (specify) _____ |
| <input type="checkbox"/> Paved Ditch | <input type="checkbox"/> Other (specify) _____ |

Describe how the structural practices listed above will be utilized during construction:

Temporary erosion control measures will be utilized until the permanent controls can be installed. Permanent sodding of disturbed areas will be done as soon as possible. Inlet and pipe protection will be placed at inlets in earth areas to prevent silt from entering the drainage system. Inlet filters will be installed at all drainage structures within paved areas to prevent silt from entering the drainage system. Perimeter erosion barriers will be installed to prevent silt from leaving the project limits.

Describe how the structural practices listed above will be utilized after construction activities have been completed:

Permanent sodding of disturbed areas will be done to prevent erosion.

D. Treatment Chemicals

Will polymer flocculents or treatment chemicals be utilized on this project: Yes No

If yes above, identify where and how polymer flocculents or treatment chemicals will be utilized on this project.

E. Permanent 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 on the basis of the technical guidance in Chapter 41 (Construction Site Storm Water Pollution Control) of the IDOT Bureau of Design & Environment 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:

Storm water detention will be provided for Project 2 in an existing detention basin located between Neil Street and First Street, north of Green Street. Pollutants in storm water discharges will be filtered by the detention basin before being discharges from the site.

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 Illinois Environmental Protection Agency'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:

The drainage plan has been approved by the City of Champaign.

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 construction entrances/exits)
- 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 operations
- Time frame for other significant long-term operations or activities that may plan non-storm water discharges such as dewatering, grinding, etc.
- Permanent stabilization activities for each area of the project

2. 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:

- 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 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 to the Contractor for the practices associated with this project. 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 Contractor's responsibility to attain maintenance guidelines for any manufactured BMPs which are to be installed and maintained per manufacture's specifications.

IV. Inspections

Qualified personnel shall inspect disturbed areas of the construction site 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 e-mail 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

Additional Inspections Required:

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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.



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 Contractors/subcontractor completing this form.

Route Green St, White St, and Wright St.	Marked Route FAU 7126 and FAP 808	Section 15-00304-02-PV
Project Number TIG-5181(058)	County Champaign	Contract Number 91540

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. ILR10 that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification.

In addition, 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

Print Name 	Signature
Title 	Date
Name of Firm 	Telephone
Street Address 	City/State/Zip

Items which the Contractor/subcontractor will be responsible for as required in Section II.G. of SWPPP:

BUILDING AWNINGS/FACADES

The Contractor's attention is called to the existing building façades, overhangs, signs and awnings along the project corridor which may project into the public right-of-way and at a height which may interfere with construction operations. The Contractor shall be held responsible for any damage to these features during construction. The Contractor and the Engineer shall conduct a pre-condition survey prior to construction with a written and photo log summary of pre-construction conditions.

Any awnings or overhangs which interfere with construction shall be removed and re-installed with the written approval of the building owner or authorized representative. This work, if required, will be considered as included in the various removal pay items of the contract and no additional compensation will be allowed.

CONNECTING INTO EXISTING MANHOLES AND STORM SEWERS

At locations indicated in the plans, proposed storm sewers are to be connected into existing manholes or existing storm sewers. These connections shall be made by core drilling holes in the structures or pipes and constructing brick and masonry around the connections to prevent leakage. This work will not be paid for separately but shall be considered as included in the contract unit prices for storm sewers of the size and type specified, and no additional compensation will be allowed.

CONSTRUCTION ON PRIVATE PROPERTY

Whenever excavation is made within a temporary or permanent construction easement, including tree planting easements, on private property for driveways, sidewalks, steps, retaining walls, utility connections, tree plantings, or other construction, the topsoil disturbed by the excavation operations shall be restored as nearly as possible to its original position and the whole area involved in the construction operation shall be left in a neat and presentable condition.

The Contractor shall use reasonable care to avoid disturbing portions of private property not necessary to the construction operations. If, in the judgment of the Engineer, areas are disturbed unnecessarily, the Contractor shall restore these areas at his or her own expense. The Contractor shall not pile excavated material outside the limits of the Right-of-Way upon adjacent private property without the written consent of the property owner and the Engineer.

The cost of compliance with this Special Provision will not be paid for separately but shall be considered as included in the cost of the EARTH EXCAVATION pay item, and no additional compensation will be allowed.

COOPERATION WITH UTILITY OWNERS

The utility companies may be making adjustments or relocations to their facilities during construction of the proposed improvements. The Contractor shall be responsible for coordinating and cooperating with the utility owners while they perform their work in accordance with Article 105.07 of the Standard Specifications. For underground utilities the Contractor shall be responsible for removing existing pavements, sidewalks, and curbs and gutters to allow access to the utilities. The utility companies will be responsible for excavating to make any necessary adjustments or relocations and backfilling their excavations. The Contractor shall notify the Engineer immediately if the utility owners are not responsive to performing their work in a timely manner. Any cost associated with these requirements or for delays in the project will not be considered for payment, and no additional compensation will be allowed.

COOPERATION WITH OTHER CONTRACTORS

There are active redevelopment projects in progress or currently being planned such that there may be other contractors working adjacent to or within the project limits. The Contractor shall be responsible for cooperating with other contractors in accordance with Article 105.08 of the Standard Specifications. Where there is overlap in work areas, the Contractor shall be responsible for coordinating construction operations so that delays are minimized. The Contractor shall notify the Engineer immediately if other contractors are not responsive to his/her coordination attempts. Any cost associated with these requirements or for delays in the project will not be considered for payment, and no additional compensation will be allowed.

CURB AND GUTTER TRANSITIONS AND THICKNESS

Whenever it is necessary to make a smooth connection between the proposed gutter or curb and gutter and the existing curb and gutter, the Contractor shall vary the horizontal and/or vertical dimensions of the proposed gutter or curb and gutter as directed by the Engineer. This work will not be paid for separately but shall be considered as included in the contract unit prices for the various curb and gutter pay items, and no additional compensation will be allowed.

CUTTING EXISTING PAVEMENT, DRIVEWAY PAVEMENT, SIDEWALK, OR CURB AND GUTTER

At locations where it is necessary to cut asphalt surfaces, concrete pavement, concrete or asphalt driveway pavement, concrete sidewalk, or concrete curb and gutter, where it will abut the proposed new construction, a uniformly straight cut shall be obtained by the use of a diamond concrete saw. The use of pneumatic tools to make these cuts will not be allowed. This work will not be paid for

separately but shall be considered as included in the contract unit prices for the various pay items of the proposed construction involved, and no additional compensation will be allowed.

DUST CONTROL

Prior to the start of construction, the Contractor shall provide to the Engineer a dust control plan in accordance with Article 107.36 of the Standard Specifications. Dust control shall be used for the earthwork operations or any other operations that warrant dust control measures as directed by the Engineer. The Contractor shall be responsible for cleaning all dust or airborne erosion from adjacent properties if concerns of health, safety, or damage to the public arise from construction operations. Water shall be used as a dust suppressant and cleaning agent unless directed otherwise by the Engineer. This work, including furnishing and applying water, will not be paid for separately but shall be considered as included in the contract unit prices for the various removal pay items, and no additional compensation will be allowed.

EXISTING SEWERS AND DRAINAGE STRUCTURES TO BE PLUGGED

Where existing sewers are to be abandoned or removed as shown in the plans, or as directed by the Engineer, the abandoned sewers and drainage structure openings which remain shall be plugged with concrete or brick masonry plugs in a workmanlike manner and to the satisfaction of the Engineer. This work will not be paid for separately but shall be considered as included in the contract unit prices for the various storm sewer pay items, and no additional compensation will be allowed.

HAND GRADING

Grading shall be done by hand around light poles, utility poles, sign posts, shrubs, trees or other natural or man-made objects where shallow fills or cuts are adjacent to the items. It is the intent that the limits of construction be such as to preserve in the original state as much area of temporary easements as possible. The decision as to items to remain in place shall be as directed by the Engineer. This work will not be paid for separately but shall be considered as included in the cost of the EARTH EXCAVATION pay item, and no additional compensation will be allowed.

HEAVY EQUIPMENT OPERATION DURING CONSTRUCTION

The Contractor shall use caution whenever operating vibratory machines within the project limits. It is the City of Champaign's intent to limit the use of vibratory machines so that unnecessary damage to adjacent properties and underground utilities can be avoided. All vibratory machines shall meet the approval of the Engineer before use. The cost of compliance with these requirements will not be

paid for separately but shall be considered as included in the contract unit prices for the various pay items of the proposed construction involved, and no additional compensation will be allowed.

MANHOLE STEPS

The manhole steps depicted on Highway Standard Drawing 602401 shall be omitted and will not be required for the manholes.

PRESERVING PROPERTY MARKERS

The Contractor shall locate the existing property corner markers along this section. Any such monuments unnecessarily destroyed by the Contractor's operations shall be replaced by a registered Illinois Land Surveyor at the Contractor's expense.

Any expense, inconveniences, or delays caused to the Contractor in complying with this Special Provision shall be considered as included in the unit bid prices of the contract, and no additional compensation will be allowed.

REMOVAL OF UNCLASSIFIED MATERIAL

Debris or unclassified materials shall be removed at the locations shown on the Plans or as designated by the Engineer. The material removed as required in this Special Provision shall be disposed of outside the limits of the right-of-way in accordance with Article 202.03 of the Standard Specifications and as directed by the Engineer. This work will not be paid for separately but shall be considered as included in the cost of the various removal items.

REMOVAL OF STREET CAR RAIL

Locations of the existing urban street car rail system within the project limits are unknown. If encountered during construction, the Contractor shall remove and dispose of any rail material that is in conflict with the proposed improvements to the satisfaction of the Engineer. This work, if required, will be considered as included in the various removal pay items of the contract and no additional compensation will be allowed.

SALVAGEABLE MATERIALS

All materials deemed salvageable by the Engineer shall remain the property of the City of Champaign and shall be stored on the job site as directed by the Engineer. The Contractor shall dispose of any materials off site that the Engineer determines should not be salvaged. This work will not be paid for separately but shall be considered as included in the cost of the various removal items.

STOCKPILE AREAS

Short-term stockpile of earth, backfill, and crushed stone material will be allowed only where directed by the Engineer. Temporary stockpiles of materials shall not interfere with local and through traffic as described in the Traffic Control Plans.

Stockpiles of materials shall not be allowed on private property (unless permission is granted by the owner in writing) or outside street rights-of-way, and shall not be allowed to block private driveways or sidewalks. Any grass area that is damaged by stockpiled material shall be repaired with sod as determined by the Engineer. These areas shall not be measured for payment and the Contractor shall repair them at his/her own expense.

TREE PROTECTION IN CONSTRUCTION ZONES

The Contractor shall protect all trees in the public right-of-way adjacent to work zones. Trees shall be isolated from all construction activities by erecting durable barriers (e.g. chain link fence, plywood walls or portable barriers) around any trees that may be subject to construction damage prior to the start of any work. Plastic snow fence is not acceptable.

Trees requiring protection shall be identified by the City of Champaign, the Engineer or as shown in the plans. The dimensions of tree protection barriers shall be as follows:

- Small trees (6 inches and less in diameter) shall be protected five (5) feet from the center of the tree in all directions except in those portions bordered by public sidewalk or curb, in which case the protective device shall be offset one (1) foot wherever possible.
- Larger trees (greater than 7 inches in diameter) shall be protected ten (10) feet from the center of the tree in all directions except in those portions bordered by public sidewalk or curb, in which case the protective device shall be offset one (1) foot wherever possible.
- Details included in the Plans.

This work shall be considered as included in the contract unit prices for the various pay items of the proposed construction involved, and no additional compensation will be allowed.

UNIVERSITY OF ILLINOIS SERVED UTILITIES

The University of Illinois owns and operates several utilities within the proposed construction limits of this project. These utilities may include but are not limited to: water, sanitary sewer, storm sewer, chilled water (supply and return system), steam distribution, compressed air, electric, helium, lighting, and telecommunications. All necessary adjustments and relocations made to University of Illinois utilities shall be performed by the Contractor as part of this contract.

No University of Illinois utility service shall be interrupted, adjusted, or relocated without written permission from the University of Illinois, Utility Distribution staff. The Contractor shall obtain written permission from the University of Illinois, Utility Distribution, before any work is started. When interruption of services is required, the Contractor shall inform the University at least five days in advance and coordinate a time that is agreed by all parties. The Facilities and Services, Service Office, 217-333-0340, shall be the point of contact for all utility issues, including outages or emergency incidents. This number provides 24/7/365 access for callers. Damage of any kind, including scratches or dents, no matter how small or minor shall be reported immediately to the Service Office and JULIE, as required by State Law.

The cost of complying with this Special Provision will not be paid for separately but shall be considered as included in the various pay items of the proposed construction involved, and no additional compensation will be allowed.

20201200 REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL

Description

This work shall consist of undercutting, removing and disposing of unsuitable earth or subgrade material below pavements, utility trenches, or at locations determined by the Engineer and in accordance with Section 202 of the Standard Specifications. All unsuitable earth or subgrade materials shall be disposed of off the site unless directed otherwise by the Engineer. The unsuitable earth or subgrade excavations shall be backfilled as shown on the "Subgrade Removal and Replacement Detail" in the plans or as directed by the Engineer.

A removal quantity has been included based on the limits of earth undercut shown in the plans. It is hereby understood that the City of Champaign reserves the right to delete any or all of this pay item quantity from the contract. Should the City of Champaign delete any or all of this pay item quantity from the contract, the Contractor will receive no remuneration for the deleted item.

Measurement and Payment

This work of undercutting and removing unsuitable earth material will be measured in accordance with Article 202.07(b) of the Standard Specifications and will be paid for at the contract unit price per cubic yard for REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL, which price shall include all labor, equipment, and material necessary to complete the work as specified.

Backfilling the excavated areas with Granular Embankment, Special will be paid for separately.

20700110 POROUS GRANULAR EMBANKMENT

Description

This work shall consist of furnishing, placing, and compacting porous granular material as backfill for pipe underdrains in accordance with Sections 207 and 209 of the Standard Specifications, the details in the plans, as specified herein, and as directed by the Engineer.

The porous granular embankment shall consist of granular material placed in uniform layers not exceeding 6 inches loose measure and compacted in a manner approved by the Engineer. The porous granular material shall have a gradation of CA 16 and shall meet the requirements of Articles 1004.01 and 1004.05 of the Standard Specifications. The material shall be installed as shown on the details in the plans.

Measurement and Payment

This work will be measured and paid for at the contract unit price per ton for POROUS GRANULAR EMBANKMENT, which price shall include all labor, equipment, and material necessary to complete the work as specified.

21000300 GRANULAR EMBANKMENT, SPECIAL

Description

This work shall consist of placing granular embankment as fill in excavations under proposed paved areas created by the removal of earth or unsuitable material as shown on the "Subgrade Removal and Replacement Detail" in the plans. The locations for the placement of the granular embankment will be the limits of earth undercut shown in the plans or as otherwise directed by the Engineer.

A quantity of granular embankment has been included based on the limits of earth undercut shown in the plans. It is hereby understood that the City of Champaign reserves the right to delete any or all of this pay item from the contract. Should the City of Champaign delete any or all of this pay item from the contract, the Contractor will receive no remuneration for the deleted item.

Construction Requirements

This work shall be performed in accordance with Sections 206, 207, and 210 of the Standard Specifications. The granular embankment shall consist of granular material placed in uniform layers not exceeding 8 inches loose measure and compacted by a vibratory roller meeting the requirements of Article 1101.01 of the Standard Specifications or by ramming or tamping as directed by the Engineer.

The granular material shall be crushed gravel, crushed stone, or crushed concrete having a gradation of CA 1 or a gradation approved by the Engineer. The material shall meet the requirements of Article 1004.01 of the Standard Specifications.

Measurement and Payment

This work will be measured and paid for at the contract unit price per ton for GRANULAR EMBANKMENT, SPECIAL, which price shall include all labor, equipment, and material necessary to complete the work as specified.

21001000 GEOTECHNICAL FABRIC FOR GROUND STABILIZATION

Description

This work shall consist of placing geotechnical fabric for ground stabilization at locations shown in the plans and as directed by the Engineer. This work shall be performed in accordance with Section 210 and Article 1080.02 of the Standard Specifications, except that the fabric material shall be nonwoven.

Measurement and Payment

This work will be measured and paid for at the contract unit price per square yard for GEOTECHNICAL FABRIC FOR GROUND STABILIZATION, which price shall include all labor, equipment, and material necessary to complete the work as specified.

21101625 TOPSOIL FURNISH AND PLACE, 6"

25200100 SODDING

25200200 SUPPLEMENTAL WATERING

Description

This work shall consist of preparing the ground surface and furnishing, stockpiling, transporting, and placing the topsoil and sod as required. This work shall be performed in accordance with Sections 211 and 252 of the Standard Specifications except as modified herein.

The areas for sodding shall be any area disturbed beyond the existing condition by the Contractor's construction operations. The plan quantity for sodding includes the entire area within the construction limits. The Contractor is advised that payment for sodding will be made for only those areas which were necessarily disturbed by construction operations as determined by the Engineer. Turfed areas which are needlessly disturbed by construction operations shall be sodded as directed by the Engineer and at the Contractor's expense.

To prevent erosion and to satisfy the requirements of the NPDES permit, sodding shall be completed as soon as possible after the completion of each stage of the project. The Engineer shall determine if temporary seeding or permanent sodding should be performed at the completion of each stage of

construction. The sodding times shall be in accordance with Article 252.04 of the Standard Specifications or as directed by the Engineer. The Contractor shall be responsible for the sodded areas until they are fully established, which may require re-sodding of any bare or dead areas until growth is established. The Contractor shall maintain the sodded areas until such time as the requirements of the NPDES permit are satisfied.

Materials

All materials shall meet the requirements of Sections 211 and 252 of the Standard Specification except for the following:

The topsoil shall meet the requirements of Article 1081.05(a) of the Standard Specifications except that the topsoil shall be sifted and all deleterious material removed including dirt clods greater than 1" in diameter.

Construction Requirements

Before any sodding begins, the Contractor shall be responsible for the removal of all debris and other deleterious material that would interfere or complicate the future maintenance of the restored surfaces and adjacent areas. After cleanup and power raking of the area to be sodded has occurred, all areas to be sodded shall have a minimum of 6" of agricultural grade topsoil applied. All areas prepared and ready for sodding shall be inspected and approved by the Engineer prior to any sod application.

Five (5) supplemental waterings shall be applied under this contract for sodded areas as directed by the Engineer. One application of water will be required every two days or as directed by the Engineer. Depending upon weather conditions, more or fewer supplemental waterings may be necessary. All watering described shall be done with a spray application. Water shall be applied at the rate of two (2) gallons per square yard per application. An open-ended hose will not be acceptable. The method of watering shall meet the acceptance of the Engineer.

After the sodded areas are established the site shall be mowed as directed by the Engineer. The mowing shall be in accordance with Article 250.10 of the Standard Specifications.

Measurement and Payment

This work will be measured for payment in accordance with Articles 211.07 and 252.12 of the Standard Specifications and paid for at the contract unit price per square yard for TOPSOIL FURNISH AND PLACE, 6", at the contract unit price per square yard for SODDING, and at the contract price per unit for SUPPLEMENTAL WATERING, which prices shall include all labor, equipment, and material necessary to complete the work as specified.

Any additional sodding of bare areas after the initial sodding operation will not be paid for separately but shall be considered as included in the cost of the sodding pay item. The plan quantity for sodding includes the entire area within the construction limits. The Contractor is advised that payment for sodding will be made for only those areas which were necessarily disturbed by construction operations as determined by the Engineer. Turfed areas beyond the construction limits

which are unnecessarily disturbed by construction operations shall be sodded as directed by the Engineer at the Contractor's expense.

40600847 POLYMERIZED LEVELING BINDER (MACHINE METHOD), IL-9.5FG, N90

This work shall consist of constructing a fine graded hot-mix asphalt leveling binder course in accordance with the following District 5 Special Provision:

HOT-MIX ASPHALT MIXTURE IL-9.5FG

Effective: July 1, 2005

Revised: December 10, 2014

Description. This work shall consist of constructing fine graded hot-mix asphalt (HMA) surface course or leveling binder with an IL-9.5FG mixture. Work shall be according to Sections 406, 407 and 1030 of the Standard Specifications, except as modified herein.

Equipment. Add the following to Article 406.03

- (i) Non-Vertical Impact Roller.....1101.01

Materials. Revise Article 1003.03(c) of the Standard Specifications to read:

“(c) Gradation. The fine aggregate gradation for all HMA shall be FA 1, FA 2, FA 20, FA 21, or FA 22. For mixture IL-9.5FG, the fine aggregate fraction shall consist of at least 67 percent manufactured sand meeting FA 20, FA 21 or FA 22 gradation. The manufactured sand shall be stone sand, slag sand, steel slag sand, or combinations thereof.”

Mixture Design. Add the following to the table in Article 1030.04(a)(1):

“High ESAL, MIXTURE COMPOSITION (% PASSING) ^{1/}		
Sieve Size	IL-9.5FG	
	min	max
1 1/2 in (37.5 mm)		
1 in. (25 mm)		
3/4 in. (19 mm)		
1/2 in. (12.5 mm)		100
3/8 in. (9.5 mm)	90	100
#4 (4.75 mm)	65	80
#8 (2.36 mm)	50	65
#16 (1.18 mm)	25	40

#30 (600 μm)	15	30
#50 (300 μm)	8	15
#100 (150 μm)	6	10
#200 (75 μm)	4	6.5
Ratio: Dust/Asphalt Binder		1.0

Revise the table in Article 1030.04(b)(1) of the Standard Specifications to read:

“VOLUMETRIC REQUIREMENTS: High ESAL			
	Voids in the Mineral Aggregate (VMA),% minimum		Voids Filled with Asphalt Binder (VFA),%
N _{design}	IL-19.0	IL-9.5, IL 9.5FG	
50	13.5	15.0	65 - 78
70			65 - 75 ^{1/}
90			

1/ The VFA range for IL-9.5FG shall be 65 - 78 percent.”

Quality Control/Quality Assurance (QC/QA). Revise the second table in Article 1030.05(d)(4) to read:

DENSITY CONTROL LIMITS			
Mixture Composition		Parameter	Individual Test
IL-4.75		N _{design} = 50	93.0 – 97.4% ^{1/}
IL-9.5FG	Lifts < 1.25 in. (32 mm)	N _{design} 50 - 90	90.0 – 95.0% ^{1/}
	Lifts ≥ 1.25 in. (32 mm)	N _{design} 50 - 90	92.0 – 96.0%
IL-9.5		N _{design} ≥ 90	92.0 – 96.0 %
IL-9.5, IL-9.5L		N _{design} < 90	92.5 – 97.4 %
IL-19.0		N _{design} ≥ 90	93.0 – 96.0 %
IL-19.0, IL-19.0L		N _{design} < 90	93.0 – 97.4 %

1/ Density shall be determined by cores or by correlated, approved thin lift nuclear gauge

2/ 92.0 % when placed as first lift on an unimproved subgrade.

CONSTRUCTION REQUIREMENTS

Leveling Binder. Revise the table and second paragraph of Article 406.05(c) of the Standard Specifications to read:

“Leveling Binder	
Nominal, Compacted, Leveling Binder Thickness, in. (mm)	Mixture Composition
≤ 1 1/4 (32)	IL 4.75, IL-9.5, IL-9.5 FG, or IL-9.5L
> 1 1/4 to 2 (32 to 50)	IL-9.5, IL-9.5FG, IL-9.5L

The density requirements of Article 406.07 (c) shall apply for leveling binder, machine method, when the nominal, compacted thickness is: 3/4 in. (19 mm) or greater for IL-9.5FG and IL 4.75 mixtures and 1 1/4 in. (32 mm) or greater for IL-9.5 and IL-9.5L mixtures.”

Compaction. Revise Table 1 in Article 406.07(a) of the Standard Specifications to read:

“TABLE 1 - MINIMUM ROLLER REQUIREMENTS FOR HMA ^{4/}				
	Breakdown Roller (one of the following)	Intermediate Roller	Final Roller (one or more of the following)	Density Requirement
Level Binder: (When the density requirements of Article 406.05(c) do not apply.)	P ^{3/}	--	V _S , P ^{3/} , T _B , T _F , 3W	To the satisfaction of the Engineer.
Level Binder: (When placed at ≤ 1 ¼ (32 mm) and density requirements of Article 406.05 (c) apply.)	V _N , T _B , 3W	P ^{3/}	V _S , T _B , T _F	As specified in Articles: 1030.05(d)(3), (d)(4), and (d)(7).
Level Binder ^{1/} > 1 ¼ in. (32 mm) Binder and Surface ^{1/}	V _D , P ^{3/} , T _B , 3W	P ^{3/}	V _S , T _B , T _F	As specified in Articles: 1030.05(d)(3), (d)(4), and (d)(7).
Bridge Decks ^{2/}	T _B	--	T _F	As specified in Articles: 582.05 and 582.06.

- 1/ If the average delivery at the job site is 85 ton/hr (75 metric ton/hr) or less, any roller combination may be used provided it includes a steel wheeled roller and the required density and smoothness is obtained.
- 2/ One T_B may be used for both breakdown and final rolling on bridge decks 300 ft (90 m) or less in length, except when the air temperature is less than 60 °F (15 °C).
- 3/ A vibratory roller (V_D) may be used in lieu of the pneumatic-tired roller on mixtures containing polymer modified asphalt binder.
- 4/ For mixture IL-4.75 a minimum of two T_B and one T_F roller shall be provided. Both the T_B and T_F rollers shall be a minimum of 280 lb/in. (49 N/mm). P and V rollers will not be permitted.

Add the following to EQUIPMENT DEFINITION

V_N - Non-Vertical Impact roller operated in a mode that will provide non-vertical impacts and operate at a speed to produce not less than 10 impacts/ft (30 impacts/m).

Rollers. Add the following to Article 1101.01 of the Standard Specifications:

- h) The non-vertical impact roller shall be self-propelled and provide a smooth operation when starting, stopping or reversing directions. Non-vertical impact drum(s) amplitude and frequency shall be approximately the same in each direction and meet the following minimum requirements: drum diameter 48 in. (1200 mm), length of drum 66 in. (1650 mm), unit static force on drum(s) 125 lb/in. (22 N/m), adjustable eccentrics, and reversible eccentrics on non-driven drum(s). The total applied force and the direction it is applied for various combinations of VPM and eccentric positions shall be shown on decals on the roller or on a chart maintained with the roller. The roller shall be equipped with water tanks and sprinkling devices, or other approved methods, which shall be used to wet the drums to prevent material pickup.

Basis of Payment. Add the following two paragraphs after the third paragraph of Article 406.14 of the Standard Specifications:

“Mixture IL-9.5FG will be paid for at the contract unit price per ton (metric ton) for LEVELING BINDER (HAND METHOD), IL-9.5FG, of the Ndesign specified; LEVELING BINDER (MACHINE METHOD), IL-9.5FG, of the Ndesign specified; or HOT-MIX ASPHALT SURFACE COURSE, IL-9.5FG, of the Ndesign specified.

Mixture IL-9.5FG in which polymer modified asphalt binders are required will be paid for at the contract unit price per ton (metric ton) for POLYMERIZED LEVELING BINDER (HAND METHOD), IL-9.5FG, of the Ndesign specified; POLYMERIZED LEVELING BINDER (MACHINE METHOD), IL-9.5FG, of the Ndesign specified; or POLYMERIZED HOT-MIX

ASPHALT SURFACE COURSE, IL-9.5FG, of the Ndesign specified.”

HMA IL-9 5 FG

42000401 PORTLAND CEMENT CONCRETE PAVEMENT 9” (JOINTED)
42000501 PORTLAND CEMENT CONCRETE PAVEMENT 10” (JOINTED)
X4200409 PORTLAND CEMENT CONCRETE PAVEMENT 9”, SPECIAL

Description

This work shall consist of constructing a Portland cement concrete pavement in accordance with Section 420 of the Standard Specifications and the following additional requirements.

Sub-Grade and Aggregate Base Course Protection

Concrete trucks shall not be allowed on the sub-grade or aggregate base course directly ahead of the paving operation, so that the base material and dowel/tie bars will not be disturbed. Concrete trucks will be allowed on the sub-grade or aggregate base course laterally adjacent to the paving operation. The sub-grade or aggregate base course must be re-graded and compacted prior to the subsequent paving operation.

Longitudinal Construction Joints

Installing the tie bars in formed or drilled holes as specified in Article 420.05(b) of the Standard Specifications will not be allowed when the concrete is in a plastic condition.

Final Finish

The final finish of the pavement shall be a heavy broom finish that is performed to the satisfaction of the Engineer. Hand tining or tining the pavement surface with a mechanically operated comb shall not be allowed.

Surface Tests and Tolerance in Thickness

The surface of the finished pavement shall be tested with a profilograph furnished by the Contractor in accordance with Article 420.10 of the Standard Specifications using the guidelines for low-speed mainline pavement. The thickness of the finished pavement shall be in accordance with Article 420.15 of the Standard Specifications. When the finished pavement surface tests or thicknesses are deficient from the requirements for pavement smoothness and thickness, the contract unit price bid for this item will be reduced in accordance with Articles 407.10, 420.10 and 420.15 of the Standard Specifications. When the finished pavement surface tests or thicknesses equal or exceed the requirements for pavement smoothness and thickness, no increase will be made to the contract unit price bid for this item. All test results shall be provided to the Engineer. If pavement grinding is necessary to correct surface finish deficiencies, the Engineer must approve the methods and magnitude of the work to be done before starting the work.

Construction Requirements

The intersections of Green Street & Locust Street, Green Street & Second Street, and Green Street & Third Street shall consist of integrally colored Portland cement concrete pavement as shown on the plans and as directed by the Engineer. The color of the integrally colored concrete shall be 920 Oynx, manufactured by S.G.S. Solomon Colors, Springfield, IL, (800) 624-0261, or (217) 522-3112. Install the color additive at a rate of one 25 lb. bag per four cubic yards of concrete per the manufacturer's recommendations.

The Contractor shall seal the integrally colored intersections with Cementone Clear Sealer by L.M. Scofield, (800) 800-9900. Concrete sealer shall be installed per the manufacturer's directions.

Measurement and Payment

This work will be measured for payment in accordance with Article 420.19 of the Standard Specifications and paid for at the contract unit price per square yard for PORTLAND CEMENT CONCRETE PAVEMENT, of the thickness and type specified, with the following exceptions. The cost of furnishing a California type profilograph or approved equivalent and providing for its maintenance and jobsite transportation; furnishing the profile scale, bump template, profilograph paper, and recorder pens as outlined in Sections 407 and 420 of the Standard Specifications; performing the required surface testing; furnishing and installing dowel bars and tie bars; providing and sealing integrally colored concrete pavement; and sawing and sealing joints will not be paid for separately but shall be included in the cost of the PORTLAND CEMENT CONCRETE PAVEMENT, and no additional compensation will be allowed.

42300200 PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 6 INCH

42300400 PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8 INCH

Description

This work shall consist of constructing a Portland cement concrete driveway pavement in accordance with Section 423 of the Standard Specifications and the following additional requirements.

Construction Requirements

Driveways shall be integrally colored Portland cement concrete with color additive 288 Buff-Rosemary, manufactured by S.G.S. Solomon Colors, Springfield, IL, (800) 624-0261, or (217) 522-3112. Install the color additive at a rate of one 25 lb. bag per four cubic yards of concrete per the manufacturer's recommendations.

The Contractor shall seal the integrally colored driveways with Cementone Clear Sealer by L.M. Scofield, (800) 800-9900. Concrete sealer shall be installed per the manufacturer's directions.

Measurement and Payment

This work will be measured and paid for at the contract unit price per square yard for PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, of the thickness specified, which price shall include all labor, equipment, and material necessary to complete the work as specified.

42400300 PORTLAND CEMENT CONCRETE SIDEWALK 6 INCH

Description

This work shall consist of constructing a Portland cement concrete sidewalk in accordance with Section 424 of the Standard Specifications and the following additional requirements.

Construction Requirements

Sidewalks shall be integrally colored Portland cement concrete with color additive 288 Buff-Rosemary, manufactured by S.G.S. Solomon Colors, Springfield, IL, (800) 624-0261, or (217) 522-3112. Install the color additive at a rate of one 25 lb. bag per four cubic yards of concrete per the manufacturer's recommendations.

The Contractor shall seal the integrally colored sidewalks with Cementone Clear Sealer by L.M. Scofield, (800) 800-9900. Install concrete sealer after the sidewalk jointing work is complete. Concrete sealer shall be installed per the manufacturer's directions. Concrete sealer shall be installed on all PCC sidewalks with color additive.

The Contractor shall protect adjacent buildings and surfaces from damage as directed by the Engineer.

Measurement and Payment

This work will be measured and paid for at the contract unit price per square foot for PORTLAND CEMENT CONCRETE SIDEWALK 6 INCH, which price shall include all labor, equipment, and material necessary to complete the work as specified.

44000161 HOT-MIX ASPHALT SURFACE REMOVAL, 3"

Description

This work shall consist of the removal of existing hot-mix asphalt surfaces by milling in accordance with Section 440 of the Standard Specifications and the following additional requirements. The salvaged material shall be stockpiled and reused as a substitute for aggregate base course, aggregate for temporary access, or other aggregate materials designated by the Engineer as specified in the technical specification for SALVAGED AGGREGATE MATERIAL.

Construction Requirements

The existing pavements shall be removed with a self-propelled milling that meets the requirements of Article 1101.16 of the Standard Specifications. The milled material shall be no larger than 1 1/2" diameter and shall be stockpiled at locations approved by the Engineer. The Contractor shall use care in removing and stockpiling the material to prevent contamination with earth or other foreign materials. Any excess or unsuitable materials determined not to be usable by the Engineer shall be disposed of off-site by the Contractor.

The Hot-Mix Asphalt Surface Removal thickness was determined by using the average thickness of the existing pavement cores. Actual thicknesses may vary from what is shown in the plans and will be as directed by the Engineer.

Hot-Mix Asphalt Surface Removal quantities will not be adjusted based on thickness differences or pavement types.

Measurement and Payment

The hot-mix asphalt surface removal will be measured for payment in accordance with Article 440.07 of the Standard Specifications and will be paid for at the contract unit price per square yard for HOT-MIX ASPHALT SURFACE REMOVAL, 3", which price shall include all labor, equipment, and material necessary to complete the work as specified.

The placement, grading, shaping, and compacting of the salvaged material will be paid for separately as SALVAGED AGGREGATE MATERIAL as specified herein.

44201769 CLASS D PATCHES, TYPE III, 10 INCH

Description

This work shall consist of the removal of the existing pavement, the necessary excavation, and the replacement with a hot-mix asphalt patch at locations shown in the plans and as directed by the Engineer. This work shall be performed in accordance with Section 442 of the Standard Specifications and the following additions and exceptions.

Pavement patching will not be further quantified by the actual size of the patch as described in Article 442.01 of the Standard Specifications. All pavement patches will be paid for at the contract unit price per square yard for CLASS D PATCHES, TYPE III, 10 INCH regardless of the installed area. No additional compensation will be allowed.

The Contractor shall have the option of installing Class C (Portland cement concrete) patches instead of Class D patches as approved by the Engineer. All pavement patches will be paid for at the contract unit price per square yard for CLASS D PATCHES, TYPE III, 10 INCH regardless of the material type. No additional compensation will be allowed.

Measurement and Payment

This work will be measured and paid for at the contract unit price per square yard for CLASS D PATCHES, TYPE III, 10 INCH, which price shall include all labor, equipment, and material necessary to complete the work as specified. No additional compensation will be allowed for variations in patching size or material type.

50300285 FORM LINER TEXTURED SURFACE

Description

This work shall consist of preparing, installing, and finishing an architectural pattern to the cast-in-place concrete parapet wall and retaining wall under the railroad viaduct. This work shall be performed according to the applicable portions of Section 503 of the Standard Specifications and as required herein.

Submittals

Product Data: Manufacturer's data sheets on each product to be used, including:

1. Printed product data and installation guidelines for form liner system.
2. Manufacturer's installation instructions, showing required preparation and installation procedures.
3. Storage and handling requirements and recommendations.
4. Installation methods.
5. Cleaning and maintenance instructions.

Shop Drawings: Submit formwork panel elevations, detailing the location of architectural concrete formwork, including but not limited to the following:

1. Form tie locations, end locations and other special conditions, panel sizes, joint locations, joint widths, reveal and false-joint locations and dimensions, elevations, sections and details of assembly components, attachment details, and weather sealing; indicate locations, configurations, typical details, connections, expansion joints, large scale plans.
2. Show sequence of installation.
3. Show location of members, other items of work and related work of other Sections to be coordinated with work of this section.
4. Submit detail drawings depicting proper installation and flashing techniques. Coordinate locations with those found on the Contract Drawings.
5. Submit revised shop drawings as directed by the Engineer if the pattern used for a mock-up is determined to be unacceptable.

Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.

1. The mock-up shall demonstrate the full range of specified design options and workmanship to be expected in completed work.

2. Locate mock-up on site in location as directed by Engineer. Clean the sample panel installation using the same materials and tools as planned for the final construction.
3. Do not proceed with remaining work until workmanship, colors, styles, patterns, and textures are approved by Engineer.
4. If the results of the mock-up are determined to be unsatisfactory by the Engineer and the City revise mock-up for new color, style, pattern and textured as directed by Engineer.
5. Modify mock-up as required to produce acceptable work.
6. Maintain mock-up for comparison with finished work.
7. Remove mock-up at the completion of the work.

Pre-Installation Meeting: Conduct a pre-installation meeting to verify all products, application procedures, site conditions and warranty terms.

Materials

Acceptable Manufacturer: Fitzgerald Formliners, 1500 E. Chestnut Avenue, Santa Ana, CA 92701; Toll Free Tel: 800-547-7760; Tel: 714-547-6710; Email: request info (info@formliners.com); Web: www.formliners.com.

GrayLastic Extended-Use Elastomeric Formliners manufactured by Fitzgerald Formliners with the following properties:

1. 100 percent pure urethane, mold bonded to 0.75 inch (19 mm) ACX plywood, up to 100 concrete pours.
2. Shore A Hardness ASTM D 2240: 60-70.
3. Cast Density: PCF 62-67.
4. Tear Strength, ASTM D 624: PLI 140-160.
5. Tensile Strength, ASTM D 638 (ASTM D 412): 1300-1600 psi.
6. Ultimate Elongation, ASTM D 638 (ASTM D 412): 280-330 percent.
7. Hardware: T-nuts are available if needed for attaching formliners to steel forms.
8. Manufacturing Tolerances: Mold bonded to 0.75 inch (19 mm) plywood: +/- 0.125 inches (3.2 mm), length and width. Unbonded: shrinkage rate of +/- 1 inch (25 mm), length and width.

Style, Model: As indicated on the Drawings. Vector file of custom pattern shall be provided by Engineer.

Construction Requirements

Do not begin installation until substrates are within manufacturer's specified tolerances and have been prepared in accordance with manufacturer's instructions. If substrate preparation is the responsibility of another installer, do not proceed with installation. Notify Engineer of unsatisfactory preparation immediately. Commencement of full installation represents acceptance of existing substrate conditions. Install in accordance with manufacturer's written instructions as applicable to each type of substrate required. Install in accordance with specified pattern and mortar.

Tolerances: Dimensions of the finished panel, at the time of erection in the structure, shall conform to the tolerances for precast, non prestressed elements in ACI 117, unless otherwise specified by the Engineer.

Cleaning: As recommended by manufacturer. Do not begin cleaning until mortar joints are properly cured. Allow a minimum of 24 to 72 hours. Soak mortar joints before applying cleaner. Thoroughly flush wall and are after cleaning. Clean adjacent materials and surfaces of all foreign materials resulting from the work of this Section.

Protection: Protect installed materials from water impinging on the visible surface, chinking, sealants joints, and from behind. Protect installed materials from dust, dirt, precipitation, freezing, damaged, spilled materials, and continuous high humidity until they are fully dry.

Measurement and Payment

This work will be measured for payment in square feet in place along the face of the concrete wall and paid for at the contract unit price per square foot for FORM LINER TEXTURED SURFACE, which price shall include all labor, equipment, and material necessary to complete the work as specified.

50606701 CLEANING AND PAINTING STRUCTURAL STEEL, LOCATION 1

Description

This work shall consist of the preparation of all designated metal surfaces by the method(s) specified on the plans. This work also includes the painting of those designated surfaces with the paint system(s) specified on the plans. The Contractor shall furnish all materials, equipment, labor, and other essentials necessary to accomplish this work and all other work described herein and as directed by the Engineer.

Materials

All materials to be used on an individual structure shall be produced by the same manufacturer.

The Bureau of Materials and Physical Research has established a list of all products that have met preliminary requirements. Each batch of material, except for the penetrating sealer, shall be tested and assigned a MISTIC approval number before use. The specified colors shall be produced in the coating manufacturer's facility. Tinting of the coating after it leaves the manufacturer's facility is not allowed.

The paint materials shall meet the following requirements of the Standard Specification and as noted below:

<u>Item</u>	<u>Article</u>
(a) Waterborne Acrylic	1008.04
(b) Aluminum Epoxy Mastic	1008.03
(c) Organic Zinc Rich Primer	1008.05
(d) Epoxy/ Aliphatic Urethane	1008.05
(e) Penetrating Sealer (Note 1)	
(f) Moisture Cured Zinc Rich Urethane Primer (Note 2)	
(g) Moisture Cured Aromatic/Aliphatic Urethane (Note 2)	
(h) Moisture Cured Penetrating Sealer (Note 3)	

Note 1: The Epoxy Penetrating Sealer shall be a cross-linked multi component sealer. The sealer shall have the following properties:

- (a) The volume solids shall be 98 percent (plus or minus 2 percent).
- (b) Shall be clear or slightly tinted color.

Note 2: These material requirements shall be according to the Special Provision for the Moisture Cured Urethane Paint System.

Note 3: The Moisture Cured Penetrating Sealer manufacturer's certification will be required.

Submittals

The Contractor shall submit for Engineer review and acceptance, the following plans and information for completing the work. The submittals shall be provided within 30 days of execution of the contract unless given written permission by the Engineer to submit them at a later date. Work cannot proceed until the submittals are accepted by the Engineer. Details for each of the plans are presented within the body of this specification.

- a) Contractor/Personnel Qualifications. Evidence of Contractor qualifications and the names and qualifications/experience/training of the personnel managing and implementing the Quality Control program and conducting the quality control tests, and certifications for the CAS (Coating Application Specialists) on SSPC-QP1 and QP2 projects.
- b) Quality Control (QC) Program. The QC Program shall identify the following; the instrumentation that will be used, a schedule of required measurements and observations, procedures for correcting unacceptable work, and procedures for improving surface preparation and painting quality as a result of quality control findings. The program shall incorporate at a minimum, the IDOT Quality Control Daily Report form, or a Contractor form (paper or electronic) that provides equivalent information.

- c) Inspection Access Plan. The inspection access plan for use by Contractor QC personnel for ongoing inspections and by the Engineer during Quality Assurance (QA) observations.
- d) Surface Preparation/Painting Plan. The surface preparation/painting plan shall include the methods of surface preparation and type of equipment to be utilized for washing, hand/power tool cleaning, removal of rust, mill scale, paint or foreign matter, abrasive blast or water jetting, and remediation of chloride. If detergents, additives, or inhibitors are incorporated into the water, the Contractor shall include the names of the materials and Safety Data Sheets (SDS). The Contractor shall identify the solvents proposed for solvent cleaning together with SDS.

If cleaning and painting over existing galvanized surfaces are specified, the plan shall address surface preparation, painting, and touch up/repair of the galvanized surfaces.

The plan shall also include the methods of coating application and equipment to be utilized.

If the Contractor proposes to heat or dehumidify the containment, the methods and equipment proposed for use shall be included in the Plan for the Engineer's consideration.

- e) Paint Manufacturer Certifications and Letters. When a sealer is used, the Contractor shall provide the manufacturer's certification of compliance with IDOT testing requirements listed under "Materials" above. A certification regarding the compatibility of the sealer with the specified paint system shall also be included.

When rust inhibitors are used, the Contractor shall provide a letter from the coating manufacturer indicating that the inhibitor is compatible with, and will not adversely affect the performance of the coating system.

If the use of a chemical soluble salt remover is proposed by the Contractor, provide a letter from the coating manufacturer indicating that the material will not adversely effect the performance of the coating system.

The paint manufacturer's most recent application and thinning instructions, SDS and product data sheets shall be provided, with specific attention drawn to storage temperatures, and the temperatures of the material, surface and ambient air at the time of application.

A letter or written instructions from the coating manufacturer shall be provided indicating the length of time that each coat must be protected from cold or inclement weather (e.g., exposure to rain) during its drying period, the maximum recoat time for each coat, and the steps necessary to prepare each coat for overcoating if the maximum recoat time is exceeded.

- f) Abrasives. Abrasives to be used for abrasive blast cleaning, including SDS. For expendable abrasives, the Contractor shall provide certification from the abrasive supplier that the abrasive meets the requirements of SSPC-AB1. For steel grit abrasives, the certification shall indicate that the abrasive meets the requirements of SSPC-AB3.
- g) Protective Coverings. Plan for containing or controlling paint debris (droplets, spills, overspray, etc.). Any tarpaulins or protective coverings proposed for use shall be fire retardant. For submittal requirements involving the containment used to remove lead paint, the Contractor shall refer to Special Provision for Containment and Disposal of Lead Paint Cleaning Residues.
- h) Progress Schedule. Progress schedule shall be submitted per Article 108.02 and shall identify all major work items (e.g., installation of rigging/containment, surface preparation, and coating application).

When the Engineer accepts the submittals, the Contractor will receive written notification. The Contractor shall not begin any paint removal work until the Engineer has accepted the submittals. The Contractor shall not construe Engineer acceptance of the submittals to imply approval of any particular method or sequence for conducting the work, or for addressing health and safety concerns.

Acceptance of the programs does not relieve the Contractor from the responsibility to conduct the work according to the requirements of Federal, State, or Local regulations and this specification, or to adequately protect the health and safety of all workers involved in the project and any members of the public who may be affected by the project. The Contractor remains solely responsible for the adequacy and completeness of the programs and work practices, and adherence to them.

Contractor Qualifications

Unless indicated otherwise on the contract plans, for non lead abatement projects, the painting Contractor shall possess current SSPC-QP1 certification. Unless indicated otherwise on the plans, for lead abatement projects the Contractor shall also possess current SSPC-QP2 certification. The Contractor shall maintain certified status throughout the duration of the painting work under the contract. The Department reserves the right to accept Contractors documented to be currently enrolled in the SSPC-QP7, Painting Contractor Introductory Program, Category 2, in lieu of the QP certifications noted above.

Quality Control (QC) Inspections

The Contractor shall perform first line, in process QC inspections. The Contractor shall implement the submitted and accepted QC Program to insure that the work accomplished complies with these specifications. The designated Quality Control inspector shall be onsite full time during any operations that affect the quality of the coating system (e.g., surface preparation and chloride remediation, coating mixing and application, and evaluations between coats and upon project completion). The Contractor shall use the IDOT Quality Control Daily Report form to record the results of quality control tests. Alternative forms (paper or electronic) will be allowed provided they furnish equivalent documentation as the IDOT form, and they are accepted as part of the QC

Program submittal. The completed reports shall be turned into the Engineer before work resumes the following day. The Engineer or designated representative will sign the report. The signature is an acknowledgment that the report has been received, but should not be construed as an agreement that any of the information documented therein is accurate.

Contractor QC inspections shall include, but not be limited to the following:

- Suitability of protective coverings and the means employed to control project debris and paint spills, overspray, etc.
- Ambient conditions
- Surface preparation (solvent cleaning, pressure washing including chalk tests, hand/power tool or abrasive blast cleaning, etc.)
- Chloride remediation
- Coating application (specified materials, mixing, thinning, and wet/dry film thickness)
- Recoat times and cleanliness between coats
- Coating continuity and coverage (freedom from runs, sags, overspray, dryspray, pinholes, shadow-through, skips, misses, etc.)

The personnel managing the Contractor's QC Program shall possess a minimum classification of Society of Protective Coatings (SSPC) BCI certified, National Association of Corrosion Engineers (NACE) Coating Inspector Level 2 - Certified, and shall provide evidence of successful inspection of 3 bridge projects of similar or greater complexity and scope that have been completed in the last 2 years. Copies of the certification and experience shall be provided. References for experience shall be provided and shall include the name, address, and telephone number of a contact person employed by the bridge owner.

The personnel performing the QC tests shall be trained in coatings inspection and the use of the testing instruments. Documentation of training shall be provided. The QC personnel shall not perform hands on surface preparation or painting activities. Painters shall perform wet film thickness measurements, with QC personnel conducting random spot checks of the wet film. The Contractor shall not replace the QC personnel assigned to the project without advance notice to the Engineer, and acceptance of the replacement(s), by the Engineer.

The Contractor shall supply all necessary equipment with current calibration certifications to perform the QC inspections. Equipment shall include the following at a minimum:

- Sling psychrometer or digital psychrometer for the measurement of dew point and relative humidity, together with all necessary weather bureau tables or psychrometric charts. In the event of a conflict between readings with the sling psychrometer and the digital psychrometer, the readings with the sling psychrometer shall prevail.
- Surface temperature thermometer.

- SSPC Visual Standards VIS 1, Guide and Reference Photographs for Steel Surfaces Prepared by Dry Abrasive Blast Cleaning; SSPC-VIS 3, Visual Standard for Power and Hand-Tool Cleaned Steel; SSPC-VIS 4, Guide and Reference Photographs for Steel Prepared by Water Jetting, and/or SSPC-VIS 5, Guide and Reference Photographs for Steel Prepared by Wet Abrasive Blast Cleaning, as applicable.
- Test equipment for determining abrasive cleanliness (oil content and water-soluble contaminants) according to SSPC abrasive specifications AB1, AB2, and AB3.
- Commercially available putty knife of a minimum thickness of 40 mils (1mm) and a width between 1 and 3 in. (25 and 75 mm). Note that the putty knife is only required for projects in which the existing coating is being feathered and tested with a dull putty knife.
- Testex Press-O-Film Replica Tape and Micrometer compliant with Method C of ASTM D4417, Standard Test Methods for Field Measurement of Surface Profile of Blast Cleaned Steel, or digital profile depth micrometer compliant with ASTM D4417, Method B. In the event of a conflict between measurements with the two instruments on abrasive blast cleaned steel, the results with the Testex Tape shall prevail. Note that for measuring the profile of steel power tool cleaned to SSPC-SP15, Commercial Grade Power Tool Cleaning, the digital profile depth micrometer shall be used.
- Bresle Cell Kits or CHLOR*TEST kits for chloride determinations, or equivalent.
- Wet Film Thickness Gage.
- Blotter paper for compressed air cleanliness checks.
- Type 2 Electronic Dry Film Thickness Gage per SSPC - PA2, Procedure for Determining Conformance to Dry Coating Thickness Requirements.
- Standards for verifying the accuracy of the dry film thickness gage.
- Light meter for measuring light intensity during paint removal, painting, and inspection activities.
- All applicable ASTM and SSPC Standards used for the work (reference list attached).

The accuracy of the instruments shall be verified by the Contractor's personnel according to the equipment manufacturer's recommendations and the Contractor's QC Program. All inspection equipment shall be made available to the Engineer for QA observations on an as needed basis.

Hold Point Notification

Specific inspection items throughout this specification are designated as Hold Points. Unless other arrangements are made at the project site, the Contractor shall provide the Engineer with a minimum 4-hour notification before a Hold Point inspection will be reached. If the 4-hour notification is provided and the Work is ready for inspection at that time, the Engineer will conduct the necessary observations. If the Work is not ready at the appointed time, unless other arrangements are made, an additional 4-hour notification is required. Permission to proceed beyond a Hold Point without a QA inspection will be granted solely at the discretion of the Engineer, and only on a case by case basis.

Quality Assurance (QA) Observations

The Engineer will conduct QA observations of any or all phases of the work. The presence or activity of Engineer observations in no way relieves the Contractor of the responsibility to provide all necessary daily QC inspections of his/her own and to comply with all requirements of this Specification.

The Engineer has the right to reject any work that was performed without adequate provision for QA observations.

Inspection Access and Lighting

The Contractor shall facilitate the Engineer's observations as required, including allowing ample time to view the work. The Contractor shall furnish, erect and move scaffolding or other mechanical equipment to permit close observation of all surfaces to be cleaned and painted. This equipment shall be provided during all phases of the work. Examples of acceptable access structures include:

- Mechanical lifting equipment, such as, scissor trucks, hydraulic booms, etc.
- Platforms suspended from the structure comprised of trusses or other stiff supporting members and including rails and kick boards.
- Simple catenary supports are permitted only if independent life lines for attaching a fall arrest system according to Occupational Safety and Health Administration (OSHA) regulations are provided.

When the surface to be inspected is more than 6 ft. (1.8 m) above the ground or water surface, and fall prevention is not provided (e.g., guardrails are not provided), the Contractor shall provide the Engineer with a safety harness and a lifeline according to OSHA regulations. The lifeline and attachment shall not direct the fall into oncoming traffic. The Contractor shall provide a method of attaching the lifeline to the structure independent of the inspection facility or any support of the platform. When the inspection facility (e.g., platform) is more than 2 1/2 ft. (800 mm) above the ground, the Contractor shall provide an approved means of access onto the platform.

The Contractor shall provide artificial lighting in areas both inside and outside the containment where natural light is inadequate, as determined by the Engineer, to allow proper cleaning, inspection, and painting. Illumination for inspection shall be at least 30 foot candles (325 LUX). Illumination for cleaning and painting, including the working platforms, access and entryways shall be at least 20 foot candles (215 LUX). General work area illumination outside the containment shall be employed at the discretion of the Engineer and shall be at least 5 foot candles. The exterior lighting system shall be designed and operated so as to avoid glare that interferes with traffic, workers, and inspection personnel.

Surface Preparation and Painting Equipment

All cleaning and painting equipment shall include gages capable of accurately measuring fluid and air pressures and shall have valves capable of regulating the flow of air, water or paint as recommended by the equipment manufacturer. The equipment shall be maintained in proper working order.

Diesel or gasoline powered equipment shall be positioned or vented in a manner to prevent deposition of combustion contaminants on any part of the structure.

Hand tools, power tools, pressure washing, water jetting, abrasive blast cleaning equipment, brushes, rollers, and spray equipment shall be of suitable size and capacity to perform the work required by this specification. All power tools shall be equipped with vacuums and High Efficiency Particulate Air (HEPA) filtration. Appropriate filters, traps and dryers shall be provided for the compressed air used for abrasive blast cleaning and conventional spray application. Paint pots shall be equipped with air operated continuous mixing devices unless prohibited by the coating manufacturer.

Test Sections

Prior to surface preparation, the Contractor shall prepare a test section(s) on each structure to be painted in a location(s) which the Engineer considers to be representative of the existing surface condition and steel type for the structure as a whole. More than one test section may be needed to represent the various design configurations of the structure. The purpose of the test section(s) is to demonstrate the use of the tools and degree of cleaning required (cleanliness and profile) for each method of surface preparation that will be used on the project. Each test section shall be approximately 10 sq. ft. (0.93 sq m). The test section(s) shall be prepared using the same equipment, materials and procedures as the production operations. The Contractor shall prepare the test section(s) to the specified level of cleaning according to the appropriate SSPC visual standards, modified as necessary to comply with the requirements of this specification. The written requirements of the specification prevail in the event of a conflict with the SSPC visual standards. Only after the test section(s) have been approved shall the Contractor proceed with surface preparation operations. Additional compensation will not be allowed the Contractor for preparation of the test section(s).

For the production cleaning operations, the specifications and written definitions, the test section(s), and the SSPC visual standards shall be used in that order for determining compliance with the contractual requirements.

Protective Coverings and Damage

All portions of the structure that could be damaged by the surface preparation and painting operations (e.g., utilities), including any sound paint that is allowed to remain according to the contract documents, shall be protected by covering or shielding. Tarpaulins drop cloths, or other approved materials shall be employed. The Contractor shall comply with the provisions of the Illinois Environmental Protection Act. Paint drips, spills, and overspray are not permitted to escape into the air or onto any other surfaces or surrounding property not intended to be painted.

Containment shall be used to control paint drips, spills, and overspray, and shall be dropped and all equipment secured when sustained wind speeds of 40 mph (64 kph) or greater occur, unless the containment design necessitates action at lower wind speeds. The contractor shall evaluate project-specific conditions to determine the specific type and extent of containment needed to control the paint emissions and shall submit a plan for containing or controlling paint debris (droplets, spills, overspray, etc.) to the Engineer for acceptance prior to starting the work. Acceptance by the Engineer shall not relieve the Contractor of their ultimate responsibility for controlling paint debris from escaping the work zone.

When the protective coverings need to be attached to the structure, they shall be attached by bolting, clamping, or similar means. Welding or drilling into the structure is prohibited unless approved by the Engineer in writing. When removing coatings containing lead the containment and disposal of the residues shall be as specified in the Special Provision for Containment and Disposal of Lead Paint Cleaning Residues contained elsewhere in this Contract. When removing coatings not containing lead the containment and disposal of the residues shall be as specified in the Special Provision for Containment and Disposal of Non-Lead Paint Cleaning Residues contained elsewhere in this Contract.

The Contractor shall be responsible for any damage caused to persons, vehicles, or property, except as indemnified by the Response Action Contractor Indemnification Act. Whenever the intended purposes of the controls or protective devices used by the Contractor are not being accomplished, work shall be immediately suspended until corrections are made. Damage to vehicles or property shall be repaired by the Contractor at the Contractor's expense. Painted surfaces damaged by any Contractor's operation shall be repaired, removed and/or repainted, as directed by the Engineer, at the Contractor's expense.

Weather Conditions

Surfaces to be painted after cleaning shall remain free of moisture and other contaminants. The Contractor shall control his/her operations to insure that dust, dirt, or moisture do not come in contact with surfaces cleaned or painted that day.

- a) The surface temperature shall be at least 5°F (3°C) above the dew point during final surface preparation operations. The manufacturers' published literature shall be followed for specific temperature, dew point, and humidity restrictions during the application of each coat.
- b) If the Contractor proposes to control the weather conditions inside containment, proposed methods and equipment for heating and/or dehumidification shall be included in the work plans for the Engineer's consideration. Only indirect fired heating equipment shall be used to prevent the introduction of moisture and carbon monoxide into the containment. The heating unit(s) shall be ventilated to the outside of the containment. Any heating/dehumidification proposals accepted by the Engineer shall be implemented at no additional cost to the department.

- c) Cleaning and painting shall be done between April 15 and October 31 unless authorized otherwise by the Engineer in writing.

The Contractor shall monitor temperature, dew point, and relative humidity every 4 hours during surface preparation and coating application in the specific areas where the work is being performed. The frequency of monitoring shall increase if weather conditions are changing. If the weather conditions after application and during drying are forecast to be outside the acceptable limits established by the coating manufacturer, coating application shall not proceed. If the weather conditions are forecast to be borderline relative to the limits established by the manufacturer, monitoring shall continue at a minimum of 4-hour intervals throughout the drying period. The Engineer has the right to reject any work that was performed, or drying that took place, under unfavorable weather conditions. Rejected work shall be removed, recleaned, and repainted at the Contractor's expense.

Compressed Air Cleanliness

Prior to using compressed air for abrasive blast cleaning, blowing down the surfaces, and painting with conventional spray, the Contractor shall verify that the compressed air is free of moisture and oil contamination according to the requirements of ASTM D 4285. The tests shall be conducted at least one time each shift for each compressor system in operation. If air contamination is evident, the Contractor shall change filters, clean traps, add moisture separators or filters, or make other adjustments as necessary to achieve clean, dry air. The Contractor shall also examine the work performed since the last acceptable test for evidence of defects or contamination caused by the compressed air. Effected work shall be repaired at the Contractor's expense.

Low Pressure Water Cleaning and Solvent Cleaning (HOLD POINT)

The Contractor shall notify the Engineer 24 hours in advance of beginning surface preparation operations.

- a) Water Cleaning of Lead Containing Coatings Prior to Overcoating. Prior to initiating any mechanical cleaning such as hand/power tool cleaning on surfaces that are painted with lead, all surfaces to be prepared and painted, and the tops of pier and abutment caps shall be washed. Washing is not required if the surfaces will be prepared by water jetting.

Washing shall involve the use of potable water at a minimum of 1000 psi (7 MPa) and less than 5000 psi (34 MPa) according to "Low Pressure Water Cleaning" of SSPC-SP WJ-4. There are no restrictions on the presence of flash rusting of bare steel after cleaning. Paint spray equipment shall not be used to perform the water cleaning. The cleaning shall be performed in such a manner as to remove dust, dirt, chalk, insect and animal nests, bird droppings, loose coating, loose mill scale, loose rust and other corrosion products, and other foreign matter. Water cleaning shall be supplemented with scrubbing as necessary to remove the surface contaminants. . The water, debris, and any loose paint removed by water cleaning shall be collected for proper disposal. The washing shall be completed no more than 2 weeks prior to surface preparation.

If detergents or other additives are added to the water, the detergents/additives shall be included in the submittals and not used until accepted by the Engineer. When detergents or additives are used, the surface shall be rinsed with potable water before the detergent water dries.

After washing has been accepted by the Engineer, all traces of asphaltic cement, oil, grease, diesel fuel deposits, and other soluble contaminants which remain on the steel surfaces to be painted shall be removed by solvent cleaning according to SSPC – SP1, supplemented with scraping (e.g., to remove large deposits of asphaltic cement) as required. The solvent(s) used for cleaning shall be compatible with the existing coating system. The Contractor shall identify the proposed solvent(s) in the submittals. If the existing coating is softened, wrinkled, or shows other signs of attack from the solvents, the Contractor shall immediately discontinue their use. The name and composition of replacement solvents, together with MSDS, shall be submitted for Engineer acceptance prior to use.

Under no circumstances shall subsequent hand/power tool cleaning or abrasive blast cleaning be performed in areas containing surface contaminants or in areas where the Engineer has not accepted the washing and solvent cleaning. Surfaces prepared by hand/power tool cleaning or abrasive blast cleaning without approval of the washing and solvent cleaning may be rejected by the Engineer. Rejected surfaces shall be re-cleaned with both solvent and the specified mechanical means at the Contractor's expense.

After all washing and mechanical cleaning are completed, representative areas of the existing coating shall be tested to verify that the surface is free of chalk and other loose surface debris or foreign matter. The testing shall be performed according to ASTM D4214. Cleaning shall continue until a chalk rating of 6 or better is achieved in every case.

- b) Water Cleaning of Non-Lead Coatings Prior to Overcoating. Thoroughly clean the surfaces according to the steps defined above for "Water Cleaning of Lead Containing Coatings Prior to Overcoating." The wash water does not need to be collected, but paint chips, insect and animal nests, bird droppings and other foreign matter shall be collected for proper disposal. If the shop primer is inorganic zinc, the chalk rating does not apply. All other provisions are applicable.
- c) Water Cleaning/Debris Removal Prior to Total Coating Removal. When total coating removal is specified, water cleaning of the surface prior to coating removal is not required by this specification and is at the option of the Contractor. If the Contractor chooses to use water cleaning, the above provisions for water cleaning of lead and non-lead coatings apply as applicable, including collection and disposal of the waste.

Whether or not the surfaces are pre-cleaned using water, the tops of the pier caps and abutments shall be cleaned free of dirt, paint chips, insect and animal nests, bird droppings

and other foreign matter and the debris collected for proper disposal. Cleaning can be accomplished by wet or dry methods.

Prior to mechanical cleaning, oil, grease, and other soluble contaminants on bare steel or rusted surfaces shall be removed by solvent cleaning according to SSPC-SP1.

- d) **Water Cleaning Between Coats.** When foreign matter has accumulated on a newly applied coat, washing and scrubbing shall be performed prior to the application of subsequent coats. The water does not need to be collected unless it contacts existing lead containing coatings.

Laminar and Stratified Rust

All laminar and stratified rust that has formed on the existing steel surfaces shall be removed. Pack rust formed along the perimeter of mating surfaces of connected plates or shapes of structural steel shall be removed to the extent feasible without mechanically detaching the mating surface. Any pack rust remaining after cleaning the mating surfaces shall be tight and intact when examined using a dull putty knife. The tools used to remove these corrosion products shall be identified in the submittals and accepted by the Engineer. If the surface preparation or removal of rust results in nicks or gouges in the steel, the work shall be suspended, and the damaged areas repaired to the satisfaction of the Engineer, at the Contractor's expense. The Contractor shall also demonstrate that he/she has made the necessary adjustments to prevent a reoccurrence of the damage prior to resuming work. If surface preparation reveals holes or section loss, or creates holes in the steel, the Contractor shall notify the Engineer. Whenever possible, the Department will require that the primer be applied to preserve the area, and allow work to proceed, with repairs and touch up performed at a later date.

Surface Preparation (HOLD POINT)

One or more of the following methods of surface preparation shall be used as specified on the plans. When a method of surface preparation is specified, it applies to the entire surface, including areas that may be concealed by the containment connection points. In each case, as part of the surface preparation process, soluble salts shall be remediated as specified under "Soluble Salt Remediation." The Contractor shall also note that the surface of the steel beneath the existing coating system may contain corrosion and/or mill scale. Removal of said corrosion and/or mill scale, when specified, shall be considered included in this work and no extra compensation will be allowed.

When a particular cleaning method is specified for use in distinct zones on the bridge, the cleaning shall extend into the existing surrounding paint until a sound border is achieved. The edge of the existing paint is considered to be sound and intact after cleaning if it cannot be lifted by probing the edge with a dull putty knife. The sound paint shall be feathered for a minimum of 1 1/2 in. (40 mm) to achieve a smooth transition between the prepared steel and the existing coatings. Sanders with vacuum attachments, which have been approved by the Engineer, shall be used as necessary to accomplish the feathering.

- a) **Limited Access Areas:** A best effort with the specified methods of cleaning shall be performed in limited access areas such as the backsides of rivets inside built up box

members. The equipment being used for the majority of the cleaning may need to be supplemented with other commercially available equipment, such as angle nozzles, to properly clean the limited access areas. The acceptability of the best effort cleaning in these areas is at the sole discretion of the Engineer.

- b) Near-White Metal Blast Cleaning: This surface preparation shall be accomplished according to the requirements of Near-White Metal Blast Cleaning SSPC-SP 10. Unless otherwise specified in the contract, the designated surfaces shall be prepared by dry abrasive blast cleaning, wet abrasive blast cleaning, or water jetting with abrasive injection. A Near-White Metal Blast Cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter, except for staining.

Random staining shall be limited to no more than 5 percent of each 9 sq. in. (58 sq. cm) of surface area and may consist of light shadows, slight streaks, or minor discoloration caused by stains of rust, stains of mill scale, or stains of previously applied paint. With the exception of crevices as defined below, surface discoloration is considered to be a residue that must be removed, rather than a stain, if it possesses enough mass or thickness that it can be removed as a powder or in chips when scraped with a pocketknife.

A surface profile shall be created on the steel as defined later under "Surface Profile."

At the discretion of the Engineer, after a best effort cleaning, slight traces of existing coating may be permitted to remain within crevices such as those created between the steel and rivets or bolts/washers/nuts, and between plates.. When traces of coating are permitted to remain, the coating shall be tightly bonded when examined by probing with a dull putty knife. The traces of coating shall be confined to the bottom portion of the crevices only, and shall not extend onto the surrounding steel or plate or onto the outer surface of the rivets or bolts. Pitted steel is excluded from exemption considerations and shall be cleaned according to SSPC-SP10.

If hackles or slivers are visible on the steel surface after cleaning, the Contractor shall remove them by grinding followed by reblast cleaning. At the discretion of the Engineer, the use of power tools to clean the localized areas after grinding, and to establish a surface profile acceptable to the coating manufacturer, can be used in lieu of blast cleaning.

If the surfaces are prepared using wet abrasive methods, attention shall be paid to tightly configured areas to assure that the preparation is thorough. After surface preparation is completed, the surfaces, surrounding steel, and containment materials/scaffolding shall be rinsed to remove abrasive dust and debris. Potable water shall be used for all operations. An inhibitor shall be added to the supply water and/or rinse water to prevent flash rusting. With the submittals, the Contractor shall provide a sample of the proposed inhibitor together with a letter from the coating manufacturer indicating that the inhibitor is suitable for use with

their products and that the life of the coating system will not be reduced due to the use of the inhibitor. The surfaces shall be allowed to completely dry before the application of any coating.

- c) A Commercial Grade Power Tool Cleaned surface, when viewed without magnification, is free of all visible oil, grease, dirt, rust, coating, oxides, mill scale, corrosion products, and other foreign matter, except for staining. In previously pitted areas, slight residues of rust and paint may also be left in the bottoms of pits.

Random staining shall be limited to no more than 33 percent of each 9 sq. in. (58 sq. cm) of surface area. Allowable staining may consist of light shadows, slight streaks, or minor discoloration caused by stains of rust, stains of mill scale, or stains of previously applied paint. Surface discoloration is considered to be a residue that must be removed, rather than a stain, if it possesses enough mass or thickness that it can be removed as a powder or in chips when scraped with a pocketknife.

A surface profile shall be created on the steel as defined later under “Surface Profile.”

At the Contractor’s option, Near-White Metal Blast Cleaning may be substituted for Power Tool Cleaning – Commercial Grade, as long as containment systems appropriate for abrasive blast cleaning are utilized and there is no additional cost to the Department.

- d) Power Tool Cleaning – Modified SP3: This surface preparation shall be accomplished according to the requirements of SSPC-SP3, Power Tool Cleaning except as modified as follows. The designated surfaces shall be cleaned with power tools. A power tool cleaned surface shall be free of all loose rust, loose mill scale, loose and peeling paint, and loose rust that is bleeding through and/or penetrating the coating. All locations of visible corrosion and rust bleed, exposed or lifting mill scale, and lifting or loose paint shall be prepared using the power tools, even if the material is tight.

Upon completion of the cleaning, rust, rust bleed, mill scale and surrounding paint are permitted to remain if they can not be lifted using a dull putty knife.

- e) Power Tool Cleaning of Shop Coated Steel. When shop-coated steel requires one or more coats to be applied in the field, the surface of the shop coating shall be cleaned as specified under “Water Cleaning of Non-Lead Coatings Prior to Overcoating.” If the damage is to a fully applied shop system, water cleaning is not required unless stipulated in the contract. Damaged areas of shop coating shall be spot cleaned according to Power Tool Cleaning - Modified SSPC-SP3. If the damage extends to the substrate, spot cleaning shall be according to SSPC-SP15. The edges of the coating surrounding all spot repairs shall be feathered.
- f) Galvanized Surfaces: If galvanized surfaces are specified to be painted, they shall be prepared by brush-off blast cleaning in accordance with SSPC-SP 16 or by using proprietary

solutions that are specifically designed to clean and etch (superficially roughen) the galvanized steel for painting. If cleaning and etching solutions are selected, the Contractor shall submit the manufacturer's technical product literature and SDS for Engineer's review and written acceptance prior to use.

Abrasives

Unless otherwise specified in the contract, when abrasive blast cleaning is specified, it shall be performed using either expendable abrasives (other than silica sand) or recyclable steel grit abrasives. Expendable abrasives shall be used one time and disposed of. Abrasive suppliers shall certify that the expendable abrasives meet the requirements of SSPC-AB1 and that recyclable steel grit abrasives meet SSPC-AB3. Tests to confirm the cleanliness of new abrasives (oil and water-soluble contamination) shall be performed by the Contractor according to the requirements and frequencies of SSPC-AB1 and SSPC-AB3, as applicable. On a daily basis, the Contractor shall verify that recycled abrasives are free of oil and water-soluble contamination by conducting the tests specified in SSPC-AB2.

All surfaces prepared with abrasives not meeting the SSPC-AB1, AB2, or AB3 requirements, as applicable, shall be solvent cleaned or low pressure water cleaned as directed by the Engineer, and reblast cleaned at the Contractor's expense.

Surface Profile (HOLD POINT). The abrasives used for blast cleaning shall have a gradation such that the abrasive will produce a uniform surface profile of 1.5 to 4.5 mils (38 to 114 microns). If the profile requirements of the coating manufacturer are more restrictive, advise the Engineer and comply with the more restrictive requirements. For recycled abrasives, an appropriate operating mix shall be maintained in order to control the profile within these limits.

The surface profile for SSPC-SP15 power tool cleaned surfaces shall be within the range specified by the coating manufacturer, but not less than 2.0 mils (50 microns).

The surface profile produced by abrasive blast cleaning shall be determined by replica tape or digital profile depth micrometer according to SSPC-PA 17 at the beginning of the work, and each day that surface preparation is performed. Areas having unacceptable profile measurements shall be further tested to determine the limits of the deficient area. When replica tape is used, it shall be attached to the daily report. In the event of a conflict between measurements taken with the replica tape and digital profile depth micrometer, the measurements with the replica tape shall prevail.

The surface profile produced by power tools to SSPC-SP15, shall be measured using the digital profile depth micrometer only. Replica tape shall not be used.

When unacceptable profiles are produced, work shall be suspended. The Contractor shall submit a plan for the necessary adjustments to insure that the correct surface profile is achieved on all surfaces. The Contractor shall not resume work until the new profile is verified by the QA observations, and the Engineer confirms, in writing, that the profile is acceptable.

Soluble Salt Remediation (HOLD POINT)

The Contractor shall implement surface preparation procedures and processes that will remove chloride from the surfaces. Surfaces that may be contaminated with chloride include, but are not limited to, expansion joints and all areas that are subject to roadway splash or run off such as fascia beams and stringers.

Methods of chloride removal may include, but are not limited to, steam cleaning or pressure washing with or without the addition of a chemical soluble salt remover as approved by the coating manufacturer, and scrubbing before or after initial paint removal. The Contractor may also elect to clean the steel and allow it to rust overnight followed by recleaning, or by utilizing blends of fine and coarse abrasives during blast cleaning, wet abrasive/water jetting methods of preparation, or combinations of the above. If steam or water cleaning methods of chloride removal are utilized over surfaces where the coating has been completely removed, and the water does not contact any lead containing coatings, the water does not have to be collected. The Contractor shall provide the proposed procedures for chloride remediation in the Surface Preparation/Painting Plan.

Upon completion of the chloride remediation steps, the Contractor shall use cell methods of field chloride extraction and test procedures (e.g., silver dichromate) accepted by the Engineer, to test representative surfaces that were previously rusted (e.g., pitted steel) for the presence of remaining chlorides. Remaining chloride levels shall be no greater than $7\mu\text{g}/\text{sq cm}$ as read directly from the surface without any multiplier applied to the results. The testing must be performed, and the results must be acceptable, prior to painting each day.

A minimum of 5 tests per 1000 sq. ft. (93 sq m) or fraction thereof completed in a given day, shall be conducted at project start up. If results greater than $7\mu\text{g}/\text{sq cm}$ are detected, the surfaces shall be recleaned and retested at the same frequency. If acceptable results are achieved on three consecutive days in which testing is conducted, the test frequency may be reduced to 1 test per 1000 sq. ft. (93 sq. m) prepared each day provided the chloride remediation process remains unchanged. If unacceptable results are encountered, or the methods of chloride remediation are changed, the Contractor shall resume testing at a frequency of 5 tests per 1000 sq. ft. (93 sq. m).

Following successful chloride testing the chloride test areas shall be cleaned. SSPC-SP15, Commercial Grade Power Tool Cleaning can be used to clean the test locations when the specified degree of cleaning is SSPC-SP10.

Surface Condition Prior to Painting (HOLD POINT)

Prepared surfaces, shall meet the requirements of the respective degrees of cleaning immediately prior to painting, and shall be painted before rusting appears on the surface. If rust appears or bare steel remains unpainted for more than 12 hours, the affected area shall be prepared again at the expense of the Contractor.

All loose paint and surface preparation cleaning residue on bridge steel surfaces, scaffolding and platforms, containment materials, and tops of abutments and pier caps shall be removed prior to

painting. When lead paint is being disturbed, cleaning shall be accomplished by HEPA vacuuming unless it is conducted within a containment that is designed with a ventilation system capable of collecting the airborne dust and debris created by sweeping and blowing with compressed air.

The quality of surface preparation and cleaning of surface dust and debris must be accepted by the Engineer prior to painting. The Engineer has the right to reject any work that was performed without adequate provision for QA observations to accept the degree of cleaning. Rejected coating work shall be removed and replaced at the Contractor's expense.

General Paint Requirements

Paint storage, mixing, and application shall be accomplished according to these specifications and as specified in the paint manufacturer's written instructions and product data sheets for the paint system used. In the event of a conflict between these specifications and the coating manufacturers' instructions and data sheets, the Contractor shall advise the Engineer and comply with the Engineer's written resolution. Until a resolution is provided, the most restrictive conditions shall apply.

Unless noted otherwise, If a new concrete deck or repair to an existing deck is required, painting shall be done after the deck is placed and the forms have been removed.

- a) **Paint Storage and Mixing.** All Paint shall be stored according to the manufacturer's published instructions, including handling, temperatures, and warming as required prior to mixing. All coatings shall be supplied in sealed containers bearing the manufacturers name, product designation, batch number and mixing/thinning instructions. Leaking containers shall not be used.

The Contractor shall only use batches of material that have an IDOT MISTIC approval number. For multi-component materials, the batch number from one component is tested with specific batch numbers from the other component(s). Only the same batch number combinations that were tested and approved shall be mixed together for use.

Mixing shall be according to the manufacturer's instructions. Thinning shall be performed using thinner provided by the manufacturer, and only to the extent allowed by the manufacturer's written instructions. In no case shall thinning be permitted that would cause the coating to exceed the local Volatile Organic Compound (VOC) emission restrictions. For multiple component paints, only complete kits shall be mixed and used. Partial mixing is not allowed.

The ingredients in the containers of paint shall be thoroughly mixed by mechanical power mixers according to the manufacturer's instructions, in the original containers before use or mixing with other containers of paint. The paint shall be mixed in a manner that will break up all lumps, completely disperse pigment and result in a uniform composition. Paint shall be carefully examined after mixing for uniformity and to verify that no unmixed pigment remains on the bottom of the container. Excessive skinning or partial hardening due to

improper or prolonged storage will be cause for rejection of the paint, even though it may have been previously inspected and accepted.

Multiple component coatings shall be discarded after the expiration of the pot life. Single component paint shall not remain in spray pots, paint buckets, etc. overnight. It shall be stored in a covered container and remixed before use.

The Engineer reserves the right to sample field paint (individual components and/or the mixed material) and have it analyzed. If the paint does not meet the product requirements due to excessive thinning or because of other field problems, the coating shall be removed from that section of the structure and replaced as directed by the Engineer.

- b) Application Methods. Unless prohibited by the coating manufacturer's written instructions, paint may be applied by spray methods, rollers, or brushes. If applied with conventional or airless spray methods, paint shall be applied in a uniform layer with overlapping at the edges of the spray pattern.

The painters shall monitor the wet film thickness of each coat during application. The wet film thickness shall be calculated based on the solids by volume of the material and the amount of thinner added. When the new coating is applied over an existing system, routine QC inspections of the wet film thickness shall be performed in addition to the painter's checks in order to establish that a proper film build is being applied.

When brushes or rollers are used to apply the coating, additional applications may be required to achieve the specified thickness per layer.

- c) Field Touch Up of Shop-Coated Steel. After cleaning, rusted and damaged areas of shop-primed inorganic zinc shall be touched up using epoxy mastic. Damaged areas of shop-applied intermediate shall be touched-up using the same intermediate specified for painting the existing structure. Following touch up, the remaining coats (intermediate and finish, or finish only, depending on the number of coats applied in the shop) shall be the same materials specified for painting the existing structure. When inorganic zinc has been used as the shop primer, a mist coat of the intermediate coat shall be applied before the application of the full intermediate coat in order to prevent pinholing and bubbling.
- d) Recoating and Film Continuity (HOLD POINT for each coat). Paint shall be considered dry for recoating according to the time/temperature/humidity criteria provided in the manufacturer's instructions and when an additional coat can be applied without the development of film irregularities; such as lifting, wrinkling, or loss of adhesion of the under coat. The coating shall be considered to be too cured for recoating based on the maximum recoat times stipulated by the coating manufacturer. If the maximum recoat times are exceeded, written instructions from the manufacturer for preparing the surface to receive the next coat shall be provided to the Engineer. Surface preparation and application shall not

proceed until the recommendations are accepted by the Engineer in writing. If surfaces are contaminated, washing shall be accomplished prior to intermediate and final coats. Wash water does not have to be collected unless the water contacts existing lead containing coatings.

Painting shall be done in a neat and workmanlike manner. Each coat of paint shall be applied as a continuous film of uniform thickness free of defects including, but not limited to, runs, sags, overspray, dryspray, pinholes, voids, skips, misses, and shadow-through. Defects such as runs and sags shall be brushed out immediately during application. Dry spray on the surface of previous coats shall be removed prior to the application of the next coat.

Paint Systems. The paint system below shall be applied as specified.

The paint manufacturer's relative humidity, dew point, and material, surface, and ambient temperature restrictions shall be provided with the submittals and shall be strictly followed. Written recommendations from the paint manufacturer for the length of time each coat must be protected from cold or inclement weather (e.g., exposure to rain), during the drying period shall be included in the submittals. Upon acceptance by the Engineer, these times shall be used to govern the duration that protection must be maintained during drying.

Where stripe coats are indicated, the Contractor shall apply an additional coat to edges, rivets, bolts, crevices, welds, and similar surface irregularities. The stripe coat shall be applied by brush or spray, but if applied by spray, it shall be followed immediately by brushing to thoroughly work the coating into or on the irregular surfaces, and shall extend onto the surrounding steel a minimum of 1 in. (25 mm) in all directions. The purpose of the stripe coat is to assure complete coverage of crevices and to build additional thickness on edges and surface irregularities. If the use of the brush on edges pulls the coating away, brushing of edges can be eliminated, provided the additional coverage is achieved by spray. Measurement of stripe coat thickness is not required, but the Contractor shall visually confirm that the stripe coats are providing the required coverage.

The stripe coat may be applied as part of the application of the full coat unless prohibited by the coating manufacturer. If applied as part of the application process of the full coat, the stripe coat shall be allowed to dry for a minimum of 10 minutes in order to allow Contractor QC personnel to verify that the coat was applied. If a wet-on-wet stripe coat is prohibited by the coating manufacturer or brush or roller application of the full coat pulls the underlying stripe coat, the stripe coat shall dry according to the manufacturers' recommended drying times prior to the application of the full coat. In the case of the prime coat, the full coat can also be applied first to protect the steel, followed by the stripe coat after the full coat has dried.

The thicknesses of each coat as specified below shall be measured according to SSPC-PA2, using Coating Thickness Restriction Level 3 (spot measurements 80% of the minimum and 120% of the maximum, provided the entire area complies with the specified ranges).

- a) System 1 – OZ/E/U – for Bare Steel: System 1 shall consist of the application of a full coat of organic (epoxy) zinc-rich primer, a full intermediate coat of epoxy, and a full finish coat of aliphatic urethane. Stripe coats of the prime and finish coats shall be applied. The film thicknesses of the full coats shall be as follows:
- One full coat of organic zinc-rich primer between 3.5 and 5.0 mils (90 and 125 microns) dry film thickness. The prime coat shall be tinted to a color that contrasts with the steel surface.
 - One full intermediate coat of epoxy between 3.0 and 6.0 mils (75 and 150 microns) dry film thickness. The intermediate coat shall be a contrasting color to both the first coat and finish coat.
 - One full finish coat of aliphatic urethane between 2.5 and 4.0 mils (65 and 100 microns) dry film thickness. Finish coat color shall be according to contract plans.

The total dry film thickness for this system, exclusive of areas receiving the stripe coats, shall be between 9.0 and 15.0 mils (225 and 375 microns).

Repair of Damage to New Coating System and Areas Concealed by Containment

The Contractor shall repair all damage to the newly installed coating system and areas concealed by the containment/protective covering attachment points, at no cost to the Department. The process for completing the repairs shall be included in the submittals. If the damage extends to the substrate and the original preparation involved abrasive blast cleaning, the damaged areas shall be prepared to SSPC-SP15 Power Tool Cleaning - Commercial Grade. If the original preparation was other than blast cleaning or the damage does not extend to the substrate, the loose, fractured paint shall be cleaned to Power Tool Cleaning – Modified SP3.

The surrounding coating at each repair location shall be feathered for a minimum distance of 1 1/2 in. (40 mm) to achieve a smooth transition between the prepared areas and the existing coating.

If the bare steel is exposed, all coats shall be applied to the prepared area. For damaged galvanizing, the first coat shall be aluminum epoxy mastic. If only the intermediate and finish coats are damaged, the intermediate and finish shall be applied. If only the finish coat is damaged, the finish shall be applied.

Special Instructions

- a) Painting shall be completed prior to erection of the GATEWAY MONUMENT SIGN.
- b) All surfaces painted inadvertently shall be cleaned immediately.

It is understood and agreed that the cost of all work outlined above, unless otherwise specified, has been included in the bid, and no extra compensation will be allowed.

Measurement and Payment

This work will be measured and paid for at the contract lump sum price for CLEANING AND PAINTING STRUCTURAL STEEL, LOCATION 1, which price shall include all labor, equipment, and material necessary to complete the work as specified. Payment will not be authorized until all requirements for surface preparation and painting have been fulfilled as described in this specification, including the preparation and submittal of all QC documentation. Payment will also not be authorized for non-conforming work until the discrepancy is resolved in writing.

Appendix 1 – Reference List

The Contractor shall maintain the following regulations and references on site for the duration of the project:

- Illinois Environmental Protection Act
- ASTM D 4214, Standard Test Method for Evaluating Degree of Chalking of Exterior Paint Films
- ASTM D 4285, Standard Test Method for Indicating Oil or Water in Compressed Air
- ASTM D4417, Standard Test Methods for Field Measurement of Surface Profile of Blast Cleaned Steel
- SSPC-AB 1, Mineral and Slag Abrasives
- SSPC-AB 2, Cleanliness of Recycled Ferrous Metallic Abrasives
- SSPC-AB 3, Ferrous Metallic Abrasive
- SSPC-PA 2, Procedure for Determining Conformance to Dry Coating Thickness Requirements
- SSPC-PA 17, Procedure for Determining Conformance to Steel Profile/Surface Roughness/Peak Count Requirements
- SSPC-QP 1, Standard Procedure for Evaluating Painting Contractors (Field Application to Complex Structures)
- SSPC-QP 2, Standard Procedure for Evaluating the Qualifications of Painting Contractors to Remove Hazardous Paint
- SSPC-SP 1, Solvent Cleaning
- SSPC-SP 2, Hand Tool Cleaning
- SSPC-SP 3, Power Tool Cleaning
- SSPC-SP 10/NACE No. 2, Near White Metal Blast Cleaning
- SSPC-SP WJ-4, Waterjet Cleaning of Metals – Light Cleaning
- SSPC-SP 15, Commercial Grade Power Tool Cleaning
- SSPC-SP 16, Brush-Off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals
- SSPC-VIS 1, Guide and Reference Photographs for Steel Surfaces Prepared by Dry Abrasive Blast Cleaning

- SSPC-VIS 3, Visual Standard for Power- and Hand-Tool Cleaned Steel
- SSPC-VIS 4, Guide and Reference Photographs for Steel Cleaned by Water Jetting
- SSPC-VIS 5, Guide and Reference Photographs for Steel Prepared by Wet Abrasive Blast Cleaning
- The paint manufacturer's application instructions, MSDS and product data sheets

50900805 PEDESTRIAN RAILING
XX005713 ORNAMENTAL RAILING

Description

This work shall consist of constructing pedestrian and ornamental railings in accordance with Section 509 of the Standard Specifications and the detail drawings shown in the plans. The railing system shall be galvanized and painted.

Painting Requirements

All weld flux and other contaminants shall be mechanically removed. All surfaces shall be degreased, cleaned, and air dried to assure all moisture is removed. All galvanized exterior surfaces shall be coated with a urethane or triglycidyl isocyanurate (TGIC) polyester powder to a dry film thickness of 2.0 mils. The painting shall be in accordance with the applicable Articles of Sections 506 and 509 of the Standard Specifications. The paint finish shall be the powder type and the color shall be black. Any damage to the finish after leaving the shop facility shall be repaired to the satisfaction of the Engineer using a method approved by the Engineer.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot for PEDESTRIAN RAILING and ORNAMENTAL RAILING, which prices shall include all labor, equipment, and material necessary to complete the work as specified, including all rails, posts, anchor devices, and painting.

50901760 PIPE HANDRAIL

Description

This work shall consist of furnishing and installing pipe handrail in accordance with the details shown in the plans, the applicable Articles of Section 509 of the Standard Specifications, and the following additions or exceptions. The pipe handrails included railings, posts and base flange anchors shall be galvanized and painted.

Painting Requirements

Paint shall match finish specified for pedestrian and ornamental railings. All weld flux and other contaminants shall be mechanically removed. All surfaces shall be degreased, cleaned, and air dried

to assure all moisture is removed. All galvanized exterior surfaces shall be coated with a urethane or triglycidyl isocyanurate (TGIC) polyester powder to a dry film thickness of 2.0 mils. The painting shall be in accordance with the applicable Articles of Sections 506 and 509 of the Standard Specifications. The paint finish shall be the powder type and the color shall be black. Any damage to the finish after leaving the shop facility shall be repaired to the satisfaction of the Engineer using a method approved by the Engineer.

Pipe handrail anchor hardware that is fastened to the concrete shall be stainless steel.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot for PIPE HANDRAIL, which price shall include all labor, equipment, and material necessary to complete the work as specified, including all rails, posts, anchor devices, and painting.

STORM SEWER REMOVAL

Description

This work shall consist of the removal and disposal of existing storm sewers including prefabricated end sections at the locations shown on the plans in accordance with Section 551 of the Standard Specifications and as directed by the Engineer. Storm sewer materials determined not to be salvageable by the Engineer shall be disposed of by the Contractor in accordance with Article 202.03 of the Standard Specifications. Excavations resulting from the removal of the storm sewers that are within two feet of paved surfaces shall be backfilled with controlled low-strength material.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot for STORM SEWER REMOVAL of the diameter specified, which price shall include all labor, equipment, and material necessary to complete the work as specified, including satisfactory removal and disposal of the existing storm sewers. The length of prefabricated end sections to be removed will also be included for payment. Controlled Low-Strength Material will be paid for separately as specified herein.

60108200 PIPE UNDERDRAINS 6" (SPECIAL)

Description

This work shall consist of the construction of pipe underdrains as shown on the proposed typical sections in the plans and in accordance with Section 601 of the Standard Specifications, except that only perforated corrugated polyethylene (PE) pipe with a smooth interior and fabric envelope around the pipe will be allowed. The pipe material shall be in accordance with Article 1040.04 of the Standard Specifications. A fabric envelope around the trench walls will not be required.

The underdrains shall be provided with cleanouts as shown on the detail in the plans or capped at the upstream end as directed by the Engineer. The underdrains shall outlet to drainage structures at the locations shown on the plans or as directed by the Engineer.

The trenches shall be backfilled with CA 16 as shown on the details in the plans and as specified under the specification for Porous Granular Embankment.

Measurement and Payment

This work will be measured for payment in accordance with Article 601.07 of the Standard Specifications. The length of cleanout pipes will be included in the pipe underdrain measurement per foot and shall include the horizontal and vertical length of pipe. This work will be paid for at the contract unit price per foot for PIPE UNDERDRAINS 6" (SPECIAL), which price shall include all labor, equipment, and material necessary to complete the work as specified, including all excavation, pipe, fabric wrap, cleanouts, fittings, and connections to drainage structures.

Porous Granular Embankment will be paid for separately as specified herein.

- MANHOLES AND INLETS WITH TYPE 1 FRAME AND LID**
- MANHOLES AND INLETS WITH TYPE 3 FRAME AND GRATE**
- MANHOLES AND INLETS WITH TYPE 3V FRAME AND GRATE**
- MANHOLES AND INLETS WITH TYPE 8 GRATE**
- MANHOLES AND INLETS WITH TYPE 11 FRAME AND GRATE**
- MANHOLE, SPECIAL**
- MANHOLES AND INLETS WITH SPECIAL FRAME AND GRATE**

Description

This work shall consist of the construction of manholes and inlets in accordance with Section 602 of the Standard Specifications, the special plan details, and Standards 602301, 602306, 602401, 602406, and 602411, except that these structures shall be constructed with precast reinforced concrete flat slab tops as detailed in the plans and Standards 602406, 602411, and 602601. Any necessary lengths of 24-inch diameter risers required to achieve the top-of-frame elevations as shown in the plans shall also be included. All manholes shall be Type A. All inlets shall be Type A or B.

Frames and lids, frames and grates, grates, and special frames and grates shall be in accordance with Standards 604001, 604006, 604011, 604036, and 604051 and the details in the plans. Neenah Foundry model numbers are identified in the plan details for the proposed castings as required.

Type 3, 3V, and 11 frames and grates shall be provided with open face curb boxes. The grates used with the Type 3 and 11 frames shall be Neenah Foundry Type "R" or approved equal for bicycle safety. Type 3V frames and grates shall meet the requirements of Highway Standard 604011, except that they shall be provided with open face curb boxes.

Structure number 346 at the southwest corner of White Street and Fourth Street shall be a Type A inlet with a Neenah Foundry model R-3508-B2 frame and grate. The gutter flowline and depressed curb shall be modified for a distance of three feet on each side of the frame and grate to direct the gutter flow to the flowline of the frame and grate or as otherwise directed by the Engineer. The plan detail for Inlets, Type A, with Special Frame and Grate does not apply for structure number 346.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for MANHOLES or INLETS, of the type and diameter specified, and with the type of frame and lid, frame and grate, or grate specified, which prices shall include all labor, equipment, and material necessary to complete the work as specified, including the cost of all excavation, concrete, bedding, and backfill; furnishing and installing the manholes, inlets, flat slab tops, and risers; and furnishing and installing the specified frames and lids, frames and grates, or grates. The frame and lid or frame and grate substitutions will not be paid for separately but shall be considered as included in the cost of the specified pay items involved.

60603800 COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.12

60604400 COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.18

Description

This work shall consist of constructing combination concrete curb and gutter, including curb and gutter with special shapes for curb flare outs, curb and gutter flare outs, curb and gutter outlets, curb and gutter transitions, or curb and gutter block outs around drainage structure frames and grates as shown on the details in the plans. The combination curb and gutter shall be constructed as shown on the details in the plans, in accordance with Section 606 of the Standard Specifications, and as directed by the Engineer.

Construction Requirements

The curb flare outs shall be used with manholes with double frames and grates where the curb and gutter is constructed separately from the pavement. The curb and gutter flare outs shall be used for the Third Street bioswale at the locations shown on the plans. The curb and gutter outlets and transitions shall be used at the locations shown on the plans and as directed by the Engineer. The curb and gutter block outs shall be used for the drainage structure frame and grate installation where the curb and gutter is constructed monolithic with the pavement. Dowel bars, tie bars, and reinforcement bars shall be placed in the curbs and gutters as shown on the details in the plans.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot for COMBINATION CONCRETE CURB AND GUTTER, of the type specified, which price shall include all labor, equipment, and material necessary to complete the work as specified. The cost of constructing curb and gutter with flare outs, outlets, transitions, or block outs including saw cuts, dowel bars, tie bars,

reinforcement bars, expansion joints, and joint sealing will not be paid for separately but shall be considered as included in the cost of the specified combination concrete curb and gutter.

66900200 NON-SPECIAL WASTE DISPOSAL
66900450 SPECIAL WASTE PLANS AND REPORTS
66900530 SOIL DISPOSAL ANALYSIS

Description

This work shall be performed in accordance with Section 669 of the Standard Specifications and the following requirements.

Qualifications

The term environmental firm shall mean an environmental firm with at least five (5) documented leaking underground storage tank (LUST) cleanups or that is pre-qualified in hazardous waste by the Department. Documentation includes but not limited to verifying remediation and special waste operations for sites contaminated with gasoline, diesel, or waste oil in accordance with all Federal, State, or local regulatory requirements and shall be provided to the Engineer for approval. The environmental firm selected shall not be a former or current consultant or have any ties with any of the properties contained within and/or adjacent to this construction project.

General

This Special Provision will likely require the Contractor to subcontract for the execution of certain activities.

All contaminated materials shall be managed as either “uncontaminated soil” or non-special waste. This work shall include monitoring and potential sampling, analytical testing, and management of a material contaminated by regulated substances. The Contractor shall continuously monitor all soil excavation for worker protection and soil contamination. Soil samples or analysis without the approval of the Engineer will be at no additional cost to the City of Champaign. The lateral distance is measured from centerline and the farthest distance is the offset distance or construction limit whichever is less.

The Contractor shall manage any excavated soils and sediment within the following areas:

PESA REC Site #10– 60 East Green Street (Hanson Professional Services, Inc. Report)
Station 105+45 to Station 106+50 (P2) (1st Street north of Green Street intersection), 10 to 33 feet LT (60 East Green Street, PESA REC Site #10, Champaign, Champaign County, Illinois) - This material meets the criteria of Article 669.09(a)(3) and shall be managed in accordance to Article 669.09. COCs sampling parameters: Naphthalene

PESA REC Site #18– 308-312 East Green Street (Hanson Professional Services, Inc. Report)
Station 37+75 to Station 38+50 (P2) (Green Street between 3rd Street and 4th Street), 15 to 33 feet LT (308-312 East Green Street, PESA REC Site #18, Champaign, Champaign County, Illinois) - This material meets the criteria of Article 669.09(a)(3) and shall be managed in accordance to Article 669.09. COCs sampling parameters: Benzo(a)pyrene, Mercury.

ISGS Site 3703-6 – Green Street Galleria (IDOT Report)

Station 12+45 to Station 12+70 (Green Street/US 45/150), 0 to 75 feet RT (Green Street Galleria, PESA Site 3703-6, 602-606 S. Neil Street, Champaign, Champaign County, Illinois) - This material meets the criteria of Article 669.09(a)(3) and shall be managed in accordance to Article 669.09. COCs sampling parameters: Benzo(a)pyrene.

ISGS Site 3703-13 – Electrical and Computer Engineering Building (IDOT Report)

Station 4034+05 to Station 4035+05 (Wright Street/US 45), 0 to 40 feet RT (Electrical and Computer Engineering Building, PESA Site 3703-13, 306 N. Wright Street, Urbana, Champaign County, Illinois) - This material meets the criteria of Article 669.09(b)(1) and shall be managed in accordance to Article 669.09.

Station 4035+05 to Station 4035+70 (Wright Street/US 45), 0 to 40 feet RT (Electrical and Computer Engineering Building, PESA Site 3703-13, 306 N. Wright Street, Urbana, Champaign County, Illinois) - This material meets the criteria of Article 669.09(a)(1) and shall be managed in accordance to Article 669.09. COCs sampling parameters: Manganese.

Any waste generated as a special waste or a waste not certified as a non-special waste from this project should be manifested off-site using the generator number associated with Champaign County. **The generator number for Champaign County is 0198995004.**

Phase I Preliminary Engineering information is available through the District's Environmental Studies Unit and can be viewed at the office of Clark Dietz, Inc., 125 W. Church St., Champaign, IL.

Measurement and Payment

This work will be measured for payment in accordance with Article 669.15 of the Standard Specifications and will be paid for at the contract unit price per cubic yard for NON-SPECIAL WASTE DISPOSAL, at the contract lump sum price for SPECIAL WASTE PLANS AND REPORTS, and at the contract unit price each for SOIL DISPOSAL ANALYSIS, which prices shall include all labor, equipment, and material necessary to complete the work as specified, including all analysis of the materials and reporting.

67000400 ENGINEER'S FIELD OFFICE, TYPE A

Description

This work shall consist of furnishing and maintaining an Engineer's field office in accordance with Section 670 of the Standard Specifications and the following additional requirements.

The Contractor shall be required to coordinate with Illinois American Water Company for the connection of a water service line from the field office to the existing water main.

The Contractor shall be required to provide cleaning services for the office interior once per week. The cleaning will require sweeping or vacuuming of all floor surfaces and cleaning of the sanitary facilities.

Measurement and Payment

This work will be measured and paid for at the contract unit price per calendar month for ENGINEER'S FIELD OFFICE, TYPE A, which price shall include all labor, equipment, and material necessary to complete the work as specified, including the water service line, coordination with Illinois American Water Company, and cleaning services.

78006100 PREFORMED THERMOPLASTIC PAVEMENT MARKING – LETTERS AND SYMBOLS

Description

This work shall consist of installing performed thermoplastic pavement markings in accordance with Section 780 of the Standard Specifications, the details shown in the plans, and the following additional requirements.

General Requirements

Prefomed thermoplastic markings shall be a durable, high skid resistant, retroreflective pavement marking material suitable for use as bike path and roadway markings. The markings must be a resilient white, green or other color thermoplastic product, the surface of which must contain glass beads and abrasives in an alternating pattern. The markings must be resistant to the detrimental effects of motor fuels, lubricants, hydraulic fluids etc. Lines, legends and symbols are capable of being affixed to Hot-Mix Asphalt and Portland Cement Concrete pavements by the use of the normal heat of a propane torch.

The markings must be capable of conforming to pavement contours, breaks and faults through the action of traffic at normal pavement temperatures. The markings shall have resealing characteristics, such that it is capable of fusing with itself and previously applied thermoplastic when heated with the torch.

The markings shall not have minimum ambient and road temperature requirements for application, storage, or handling.

Manufacturer Requirements

The manufacturer must be ISO 9001:2008 certified and provide proof of current certification. The scope of the certification shall include manufacture of reflective highway markings.

Materials

Performed thermoplastic materials shall be composed of an ester modified rosin resistant to degradation by motor fuels, lubricants etc. in conjunction with aggregates, pigments, binders, abrasives, and glass beads which have been factory produced as a finished product, and meets the requirements of the current edition of the Manual on Uniform Traffic Control Devices for Streets and Highways. The thermoplastic material conforms to AASHTO designation M249-79 (98), with the exception of the relevant differences due to the material being supplied in a preformed state.

Graded Glass Beads:

The material must contain a minimum of thirty percent (30%) intermixed graded glass beads by weight. The intermixed beads shall be clear and transparent. Not more than twenty percent (20%) consists of irregular fused spheroids, or silica. The index of refraction shall not be less than 1.50.

The material must have factory applied coated surface beads and abrasives in addition to the intermixed beads at a rate of 1/2 lb. ($\pm 20\%$) per 11 sq. ft. The surface beads and abrasives must be applied in an alternating arrangement across the surface of the material so that the surface is covered in what is best described as a “checkerboard” pattern of glass beads and abrasive materials. The abrasive material must have a minimum hardness of 8 (Mohs scale). These factory applied coated surface beads shall have the following specifications:

- Minimum 80% rounds
- Minimum refractive index of 1.5
- Minimum SiO₂ Content of 70%;
- Maximum iron content of 0.1%;

Size Gradation		Retained, %	Passing, %
US Mesh	Um		
12	1700	0 - 2%	98 - 100%
14	1400	0 - 6%	94 - 100%
16	1180	1 - 21%	79 - 99%
18	1000	28 - 62%	38 - 72%
20	850	62 - 71%	29 - 38%
30	600	67 - 77%	23 - 33%
50	300	86 - 95%	5 - 14%
80	200	97-100%	0 - 3%

Pigments:

White - The material shall be manufactured with sufficient titanium dioxide pigment to meet FHWA Docket No. FHWA-99-6190 Table 5 and Table 6 as revised and corrected.

Red, Blue, and Yellow - The material shall be manufactured with sufficient pigment to meet FHWA Docket No. FHWA-99-6190 Table 5 and Table 6 as revised and corrected. The yellow pigments must be organic and must be heavy-metal free.

Other Colors - The pigments must be heavy-metal free.

Heating indicators:

The top surface of the material (same side as the factory applied surface beads) shall have regularly spaced indents. These indents shall act as a visual cue during application that the material has reached a molten state so satisfactory adhesion and proper bead embedment has been achieved and a post-application visual cue that the installation procedures have been followed.

Skid Resistance:

The surface of the preformed retroreflective marking materials, wherein every other shaped portion contains glass beads, or abrasives with a minimum hardness of 8 (Mohs scale), shall upon application provide a minimum skid resistance value of 60 BPN when tested according to ASTM: E 303.

Thickness:

The material must be supplied at a minimum thickness of 90 mils (2.29 mm) or 125 mils (3.15 mm).

Retroreflectivity:

The preformed retroreflective marking materials upon application shall exhibit adequate and uniform nighttime retroreflectivity. The marking materials shall have the following retroreflectivity as measured using a Delta LTL 2000 or LTL-X Retroreflectometer:

White preformed reflective marking materials—minimum of $275 \text{ mcd} \cdot \text{m}^{-2} \cdot \text{lx}^{-1}$

Note: Initial retroreflection and skid resistance are affected by the amount of heat applied during installation. When ambient temperatures are such that greater amounts of heat are required for proper installation, initial retroreflection and skid resistance levels may be affected.

Environmental Resistance:

The material must be resistant to deterioration due to exposure to sunlight, water, salt or adverse weather conditions and impervious to oil and gasoline.

Abrasives:

The abrasives and surface beads must be applied in an alternating arrangement across the surface of the material so that the surface is covered in what is best described as a “checkerboard” pattern of glass beads and abrasive materials. The abrasive material must have a minimum hardness of 8 (Mohs scale).

Construction Requirements

For performed thermoplastic markings applied on Hot-Mix Asphalt pavements, the materials shall be applied using the propane torch method recommended by the manufacturer. The material must be able to be applied without minimum requirements for ambient and road temperatures and without any preheating of the pavement to a specific temperature. The material must be able to be applied without the use of a thermometer. The pavement shall be clean, dry and free of debris. Supplier must enclose application instructions with each box/package.

For performed thermoplastic markings applied on Portland Cement Concrete pavements, the same application procedure shall be used as described above. However, a compatible primer sealer shall be applied before application to assure proper adhesion. In addition, grinding of the Portland Cement Concrete pavements will be required per the manufacturer’s recommendations and as directed by the Engineer.

The preformed thermoplastic markings shall be placed in protective plastic film with cardboard stiffeners where necessary to prevent damage in transit. Linear material must be cut to a maximum of 3' long pieces. Legends and symbols must also be supplied in flat pieces. The cartons in which packed shall be non-returnable and shall not exceed 40" in length and 25" in width, and be labeled for ease of identification. The weight of the individual carton must not exceed seventy (70) pounds. A protective film around the box must be applied in order to protect the material from rain or premature aging.

Measurement and Payment

This work will be measured and paid for at the contract unit price per square foot for PREFORMED THERMOPLASTIC PAVEMENT MARKING – LETTERS AND SYMBOLS, which price shall include all labor, materials, and equipment necessary to furnish and install preformed thermoplastic pavement markings of various colors, both with and without embedded symbols, as shown on the details in the plans and as specified herein

X0300019 REMOVE AND REINSTALL PARKING BLOCKS

X0301339 REMOVE EXISTING PARKING BLOCKS

X0301430 PRECAST CONCRETE PARKING BLOCK

Description

This work shall consist of the removal, disposal, stockpiling, protection, and reinstallation of existing parking blocks and the installation of new precast concrete parking blocks at locations shown in the plans and as directed by the Engineer.

Construction Requirements

At locations where existing parking blocks are specified to be removed and reinstalled, the Contractor shall remove, stockpile, protect, and reinstall the existing parking blocks to the satisfaction of the Engineer. The Contractor shall be responsible for the replacement of any damaged parking blocks as a result of his/her operations at no additional compensation.

At locations where new parking blocks are proposed, the Contractor shall deliver and install the precast concrete parking blocks as directed by the Engineer.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for REMOVE AND REINSTALL PARKING BLOCKS, REMOVE EXISTING PARKING BLOCKS, or PRECAST CONCRETE PARKING BLOCK, which prices shall include all labor, equipment, and material necessary to complete the work as specified.

X0320239 CONCRETE WALL REMOVAL
XZ127900 RETAINING WALL REMOVAL

Description

This work shall consist of the removal and disposal of existing retaining walls and structures of various material types in accordance with the applicable Articles of Section 501 of the Standard Specifications and the following additions or exceptions.

The existing structures including foundations or footings shall be removed completely at the locations shown on the plans and as directed by the Engineer. Removal includes excavation from the existing ground level on both sides of the wall to the bottom of the footing. Provide shoring and bracing for structural elements during removal to avoid damage to existing facilities. The resultant voids at the removal locations that will not be filled by the proposed construction shall be backfilled with controlled low-strength material as directed by the Engineer.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot for CONCRETE WALL REMOVAL or RETAINING WALL REMOVAL, which prices shall include all labor, equipment, and material necessary for the satisfactory removal and disposal of the existing structures, including all controlled low-strength material backfill. No additional compensation will be allowed because of variations from the assumed thickness or for variations in the amount of reinforcement.

X0321690 BRICK WALL REMOVAL

Description

This work shall consist of the removal, disposal, and salvage of a portion of the existing retaining wall at the southeast corner of the intersection of Green Street and First Street in accordance with the applicable Articles of Section 501 of the Standard Specifications and the following additions or exceptions.

A portion of the existing structure including foundations or footings shall be removed to the limits shown on the plans and as directed by the Engineer. At the limits of removal, neatly remove brick without damaging the existing portion of the wall to remain. The existing bricks shall be salvaged, stockpiled, and protected for incorporation into the new wall as specified under the pay item for BRICK WALL. The existing foundation shall be saw-cut at the limits of removal.

Provide and furnish temporary shoring for the remaining portions of the existing wall as directed by the Engineer. The resultant voids at the removal locations that will not be filled by the proposed construction shall be backfilled with controlled low-strength material as directed by the Engineer.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot for BRICK WALL REMOVAL, which price shall include all labor, equipment, and material necessary for the satisfactory removal, disposal, and salvage of the existing structure, including all controlled low-strength material backfill. No additional compensation will be allowed because of variations from the assumed thickness or for variations in the amount of reinforcement.

X0322024 TRENCH DRAIN

Description

This work shall consist of the construction of trench drains in accordance with Section 602 of the Standard Specifications, the special plan details, and as directed by the Engineer.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for TRENCH DRAIN, which price shall include all labor, equipment, and material necessary to complete the work as specified, include the cost of all excavation and backfill; concrete, reinforcement bars, and other required materials, and furnishing and installing the specified frames and grates.

X0322208 TEMPORARY STORM SEWER PLUGS

Description

This work shall consist of installing a storm sewer plug as shown on the plans and as directed by the Engineer. The proposed 36" storm sewer on Locust Street will be extended by others after the project is complete. The temporary storm sewer plug shall consist of a masonry plug with a 6 inch minimum thickness as shown in the plans and directed by the Engineer.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for TEMPORARY STORM SEWER PLUGS, which price shall include all labor, equipment, and material necessary for the satisfactory plugging of the storm sewer as specified.

X0323265 REMOVE EXISTING RIPRAP

Description

This work shall consist of the removal and disposal of existing riprap of various sizes in accordance with the applicable Articles of Section 202 of the Standard Specifications and the following additions or exceptions.

The existing riprap shall be removed and reinstalled or disposed of as directed by the Engineer. The Contractor shall take care not to disturb existing riprap outside the limits of the proposed limits of improvements. The Contractor shall be responsible for any unnecessary damage at his/her own expense.

Measurement and Payment

This work will be measured and paid for at the contract unit price per square yard for REMOVE EXISTING RIPRAP, which price shall include all labor, equipment, and material necessary for the satisfactory removal and reinstallation or disposal of the existing riprap. No additional compensation will be allowed because of variations from the assumed size or depth of riprap.

X0323706 TRASH RECEPTACLE RELOCATION

X0326519 STEEL RAILING REMOVAL

X0327552 TREE GRATE REMOVAL

XX001186 PLANTER REMOVAL

XX009026 BENCH REMOVAL

Description

This work shall consist of the removal of existing streetscape items as shown in the plans and as directed by the Engineer.

General Requirements

All removal items shall remain the property of the City of Champaign unless the City indicates otherwise. If the City of Champaign desires to salvage the removed items, the Contractor shall haul the salvaged material to the City of Champaign Public Works Facility as directed by the Engineer. The Contractor shall be responsible for disposing of all items that are not salvaged by the City of Champaign.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot for STEEL RAILING REMOVAL and at the contract unit price each for TRASH RECEPTACLE RELOCATION, TREE GRATE REMOVAL, PLANTER REMOVAL, and BENCH REMOVAL, which prices shall include all labor, equipment, and material necessary for the satisfactory removal, salvaging, and disposal of the existing streetscape items. No additional compensation will be allowed because of variations in the means which items are installed or secured.

X0323859 DOWNSPOUT CONNECTION

Description

This work shall consist of the installation of downspout connections as shown in the plans and as directed by the Engineer.

Materials

The downspout shoes and piping material used to connect to existing downspouts shall match the existing gutter size and color as directed by the Engineer.

Construction Requirements

The locations of the existing downspouts are considered approximate. The Contractor shall be responsible for locating the existing downspouts, verifying the size and material type of the existing downspouts, and determining the necessary fittings for a complete water tight installation. The Contractor shall connect to existing downspouts in a workmanlike manner and to the satisfaction of the Engineer.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for DOWNSPOUT CONNECTION, which price shall include all labor, equipment, and material necessary to complete the work as specified.

X0324078 CONFLICT MANHOLES

XX007891 CONFLICT MANHOLE, 5' DIAMETER, TYPE 1 FRAME, CLOSED LID

Description

This work shall consist of the construction of conflict manholes in accordance with the special plan details, Section 602 of the Standard Specifications, and the details of Standards 602401, 602411, 602601, and 604001. Any necessary lengths of 24-inch diameter risers required to achieve the top-of-frame elevations as shown in the plans shall also be included. All manholes shall be Type A.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for CONFLICT MANHOLES and CONFLICT MANHOLE, 5' DIAMETER, TYPE 1 FRAME, CLOSED LID, which prices shall include all labor, equipment, and material necessary to complete the work as specified, including the cost of all excavation, concrete, bedding, and backfill; furnishing and installing the manholes, flat slab tops, and risers; and furnishing and installing the specified frames and lids.

X0324752 STORM SEWER TO BE FILLED

Description

This work shall consist of filling existing storm sewer pipes that will be abandoned in place with controlled low-strength material as directed by the Engineer. The controlled low-strength material shall be in accordance with Section 593 of the Standard Specifications. The pipes shall be filled with the use of concrete pumping machines or by methods approved by the Engineer.

Excavations shall be made to expose the ends of pipes to be filled. If necessary vent holes shall be made in the pipes to allow air to release while filling. The pipes shall be completely filled with controlled low-strength material to prevent collapsing and the ends capped to contain the controlled low-strength material. Excavations within paved areas shall be backfilled with controlled low-strength material.

Measurement and Payment

This work will be measured and paid for at the contract unit price per cubic yard for STORM SEWER TO BE FILLED, which price shall include all labor, equipment, excavation, controlled low-strength material for filling the pipe, pipe caps, earth backfill, and controlled low-strength material backfill.

X0327762 RAILROAD FLAGGER

Description

This work shall consist of all coordination and payments for providing railroad flaggers as specified in Article 107.12 of the Standard Specifications except the reference to the basis of payment shall be deleted.

Measurement and Payment

This work will be measured and paid for at the contract lump sum price for RAILROAD FLAGGER, which price shall include all necessary coordination and payments for railroad flagger services.

X1200059 MANHOLE RISER STRUCTURES (OPEN BOTTOM)

Description

This work shall consist of the construction of manholes in accordance with the special plan details, the details of Standards 602401, 602601, 604001, 604006, and 604036, Sections 602 and 604 of the Standard Specifications, and as directed by the Engineer.

Materials

The manholes shall be Type A of various diameters and heights with cast in place bases as shown on the details in the plans and provided with flat slab tops. The manhole barrel sections shall be precast reinforced concrete. Any necessary lengths of 24-inch diameter risers required to achieve the top-of-frame elevations as shown in the plans shall also be included.

The special type of frame and grate shall be Neenah Foundry Company catalog number R-3595 or approved equal. The frame shall be provided with an open face curb box and marked with the words "DUMP NO WASTE".

Construction Requirements

The Contractor shall core and saw cut a hole in the existing storm sewer as necessary to allow for drainage as shown on the detail in the plans. A reinforced concrete base shall be constructed as shown on the detail. The manhole and frame and grate shall be installed in accordance with Sections 602 and 604 of the Standard Specifications.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for MANHOLE RISER STRUCTURES (OPEN BOTTOM), which price shall include all labor, equipment, and material necessary to complete the work as specified, including excavation, furnishing and installing the concrete base, reinforcement bars, manholes, flat slab tops, adjusting rings, frames and grates, concrete fillets, saw cutting, and backfilling with controlled low-strength material.

**X4230800 PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8 INCH,
SPECIAL**

Description

This work shall consist of constructing a Portland cement concrete driveway pavement at locations shown in the plans in accordance with Section 423 of the Standard Specifications and the following additional requirements.

Construction Requirements

The driveway pavement shall consist of integrally colored Portland cement concrete pavement as shown on the plans and as directed by the Engineer. The color of the integrally colored concrete shall be 908 Ultra Black, manufactured by S.G.S. Solomon Colors, Springfield, IL, (800) 624-0261, or (217) 522-3112. Install the color additive at a rate of one 25 lb. bag per two cubic yards of concrete per the manufacturer's recommendations.

Measurement and Payment

This work will be measured and paid for at the contract unit price per square yard for PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8 INCH, SPECIAL, which price shall include all labor, equipment, and material necessary to complete the work as specified.

X5011100 FOUNDATION REMOVAL

Description

This work shall consist of the removal and disposal of existing concrete foundations in accordance with the applicable Articles of Section 501 of the Standard Specifications and the following additions or exceptions.

The existing foundations shall be removed completely at the locations shown on the plans and as directed by the Engineer.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for FOUNDATION REMOVAL, which price shall include all labor, equipment, and material necessary for the satisfactory removal and disposal of the existing foundations. No additional compensation will be allowed because of variations from the assumed thickness, depths, or amount of reinforcement.

X5020200 STRUCTURE EXCAVATION (SPECIAL)

Description

This work shall consist of the excavation required for the construction of structures in accordance with Section 502 of the Standard Specifications including temporary shoring and placing granular and porous granular embankment behind walls where indicated on the plans. In addition to the Standard Specifications the work shall be according to the following requirements.

Shoring

Where necessary to protect existing facilities and at the discretion of the Contractor to limit the excavation, the Contractor shall support sides of excavation for construction of walls. Where used, furnishing, placement and removal of sheet piling shall be according to Section 512 of the Standard Specifications. Protect existing active utility services and structures from damage during shoring and excavation work. Provide suitable shoring and bracing materials which will support loads imposed. The Contractor shall verify locations of all underground utilities before driving any sheet piling. Any disturbance or damage to existing structures, utilities or other property, caused by the Contractor's operation, shall be repaired by the Contractor in a manner satisfactory to the Engineer at no additional cost to the City.

Before starting work, check and verify governing dimensions and elevations. Survey condition of adjoining properties, take photographs, recording existing settlement or cracking of structures, pavements, and other improvements. Prepare list of such damages, verified by dated photographs, and signed by Contractor and others conducting investigation.

Protect site from caving and unacceptable soil movement. Where shoring is required, locate system to clear permanent construction and to permit forming and finishing of concrete surfaces. Provide shoring system adequately anchored and braced to resist earth and hydrostatic pressures. Shoring systems retaining earth on which support or stability of existing structures is dependent must be left in place at completion of work. If wood is part of shoring system near existing structures, use pressure preservative treated materials or remove before placement of backfill. Remove sheeting, shoring and bracing in stages to avoid disturbance to underlying soils and damage to structures, pavements, facilities, and utilities.

Backfill and Embankment

After concrete has obtained the specified strength, the spaces in front and back of the construction shall be backfilled to the required elevation with suitable material, compacted, and neatly graded. Backfilling shall be conducted in accordance with Article 502.10. Backfill material including granular embankment and porous granular embankment and placement shall be included in the cost of STRUCTURE EXCAVATION (SPECIAL).

Measurement and Payment

STRUCTURE EXCAVATION (SPECIAL) will be measured for payment in its original position and volume computed in cubic yards. Horizontal dimensions will not extend beyond vertical planes 2 ft

outside of the edges of footings of walls. The vertical dimension for structure excavation will be the average depth from the surface of the material to be excavated to the bottom of the footing as shown on the plans or ordered in writing by the Engineer. Where the finished fill behind the wall is above the original surface elevation behind the wall, the volume shall be measured to include the vertical difference between the original and finished surface elevation. The volume of granular embankment and porous granular embankment where indicated to be placed on the plans is included in the volume of STRUCTURE EXCAVATION (SPECIAL). The volume of any unstable and/or unsuitable material removed within the structure excavation will be measured for payment in cubic yards.

This work will be paid for at the contract unit price per cubic yard for STRUCTURE EXCAVATION (SPECIAL), which price shall include all labor, equipment, and material necessary to complete the work as specified, including replacing excavated material with granular embankment and porous granular embankment where required on the plans.

X5030225 CONCRETE STRUCTURES (SPECIAL)

Description

This work shall consist of constructing cast-in-place concrete footings, walls, retaining walls, and parapets including dowel bars, furnishing and installing imbedded dovetail anchor slots, pipes, sleeves, and drains in accordance with the details in the plans.

All work for under this pay item shall be in accordance with Sections 503 and 508 of the Standard Specifications, except as specified herein.

Cast-in-place concrete for footings, walls, retaining walls, and parapets shall be Class SI in accordance with Section 1020 of the Standard Specifications.

Shop Drawings

Prior to fabrication, the Contractor shall submit shop drawings prepared in accordance with ACI 315, Manual of Standard Practice for Detailing Reinforced Concrete Structures. Drawings shall indicate bending diagrams, shapes, dimensions, clearances, splicing and lap lengths, accessories, and installation notes.

Dowel Bars

Dowel bars shall be drilled and grouted into existing concrete structures. Dowel bars shall be in accordance with Section 1006.11 of the Standard Specifications. Furnishing and installing dowel bars shall be included in the cost of CONCRETE STRUCTURES (SPECIAL).

Protective Coat

Protective coat will be applied according to Section 503.19 and shall be included in the cost of CONCRETE STRUCTURES (SPECIAL).

Construction Requirements

As required on the plans, walls with Form Liner Textured Surface under the railroad bridge shall be integrally colored Portland cement concrete with color additive 288 Buff-Rosemary, manufactured by S.G.S. Solomon Colors, Springfield, IL, (800) 624-0261, or (217) 522-3112; Install the color additive at a rate of one 25 lb. bag per four cubic yards of concrete per the manufacturer's recommendations.

Method of Measurement

CONCRETE STRUCTURES (SPECIAL) will be measured for payment in place and the volume computed in cubic yards. The dimensions used will not exceed those shown on the plans or ordered in writing by the Engineer. Increased quantities from the omission of forms for footings will not be measured for payment. No deduction will be made for the volume of concrete displaced by the steel reinforcement, drain holes, and expansion joint material. The reduction in quantity of concrete involved in scoring and chamfers 2 sq in. or less in cross sectional areas will be neglected in all measurements for payment separately.

This work will be paid for at the contract unit price per cubic yard for CONCRETE STRUCTURES (SPECIAL), which price shall include all labor, equipment, and material necessary to complete the work as specified, including all reinforcement bars.

X5930100 CONTROLLED LOW-STRENGTH MATERIAL, SPECIAL

Description

This work shall consist of furnishing and placing controlled low-strength material (CLSM) for backfilling trenches and other excavations in accordance with the applicable Articles of Sections 208, 550, 593, 602, and 605 of the Standard Specifications.

Construction Requirements

Excavations for utility removals shall be backfilled with CLSM as shown in the plans, as required by the technical specifications, and as directed by the Engineer.

Trenches for proposed utilities shall be backfilled with sand and CLSM in accordance with the details shown in the plans and as directed by the Engineer. Trenches shall be backfilled with sand and compacted to the top of the pipe for storm sewers and to 12 inches above the top of the pipe for sanitary sewers and water mains as shown on the details in the plans. CLSM shall only be placed above the top of pipes to allow for future excavating without damaging the pipes unless otherwise directed by the Engineer.

CLSM shall be used in place of the sand backfill specified in Articles 602.12 and 605.03 of the Standard Specifications for backfill around manholes and inlets and for backfilling excavations resulting from the removal of structures.

Measurement and Payment

The CLSM used for backfilling trenches and excavations resulting from the removal of manholes, inlets, and sewer pipes will be paid for at the contract unit price per cubic yard for CONTROLLED LOW-STRENGTH MATERIAL, SPECIAL, which price shall include all labor, equipment, and material necessary to complete the work as specified.

The CLSM used for backfilling trenches for proposed utilities will be measured and paid for at the contract unit price per cubic yard for CONTROLLED LOW-STRENGTH MATERIAL, SPECIAL, which price shall include all labor, equipment, and material necessary to complete the work as specified. Payment depths and trench widths are shown on the details in the plans.

The CLSM used for backfill around manholes or inlets will not be measured for payment but shall be included in the cost of the specified manhole or inlet in accordance with Article 602.12 of the Standard Specifications.

- X6024242 INLETS, SPECIAL, NO. 1**
- X6024244 INLETS, SPECIAL, NO. 2**
- X6024246 INLETS, SPECIAL, NO. 3**
- X6024248 INLETS, SPECIAL, NO. 4**

Description

This work shall consist of the construction of inlets atop an existing double box culvert in accordance with applicable portions of Section 602 of the Standard Specifications, the special plan details, and as directed by the Engineer.

Construction Requirements

The Contractor shall be responsible for modifying the existing double box culvert so that the proposed inlets can be installed as detailed in the plans. It is the City of Champaign's intent to minimize the amount of culvert modifications to the extent of what is only needed for the proposed frame and grate installations. The Contractor will be held responsible for any unnecessary damage to the existing double box culvert at his/her own expense.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for INLETS, SPECIAL of the specified number, which price shall include all labor, equipment, and material necessary for the satisfactory installation of the specified frame and grate as described herein. No additional compensation will be allowed because of variations from the assumed thickness or amount of reinforcement encountered with the existing double box culvert.

X6024250 INLETS, SPECIAL, NO. 5

Description

This work shall consist of the construction of shallow inlets with Type 3 Frame and Grates atop existing utilities in accordance with applicable portions of Section 602 of the Standard Specifications, the special plan details, and as directed by the Engineer.

Construction Requirements

The Contractor shall be responsible for field verifying plan locations and elevations of the proposed special inlets. The Contractor shall locate and protect the existing utilities during construction operations which he/she will be held responsible for any unnecessary damage to the existing utilities.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for INLETS, SPECIAL, NO. 5, which price shall include all labor, equipment, and material necessary for the satisfactory installation of the special inlet as described herein, including all required concrete, bedding, and backfill material.

X6024252 INLETS, SPECIAL, NO. 6

Description

This work shall consist of the construction of inlets with special frames and grates and without curb boxes in accordance with applicable portions of Section 602 of the Standard Specifications, the special plan details, and as directed by the Engineer.

Construction Requirements

The Contractor shall be responsible for field verifying plan locations and elevations of the proposed special inlets. The inlets shall be located in areas where the curb height is 11 inches as shown on the plans or as otherwise directed by the Engineer. The special type of frame and grate shall be Neenah Foundry Company catalog number R-3471.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for INLETS, SPECIAL, NO. 6, which price shall include all labor, equipment, and material necessary for the satisfactory installation of the special inlet as described herein, including all required concrete, bedding, and backfill material.

X6060048 COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.18
(SPECIAL)

Description

This work shall consist of constructing combination concrete curb and gutter with a 30 inch wide gutter flag to be modified with subsequent pavement milling and resurfacing operations along Wright Street. The curb and gutter shall be constructed as shown on the details in the plans, in accordance with Section 606 of the Standard Specifications, and as directed by the Engineer.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot for COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.18 (SPECIAL), which price shall include all labor, equipment, and material necessary to complete the work as specified.

X6060505 CONCRETE CURB (SPECIAL)

Description

This work shall consist of constructing concrete curb of varying height along Second Street north of Green Street. The curb shall be constructed as shown on the details in the plans, in accordance with Section 606 of the Standard Specifications, and as directed by the Engineer.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot for CONCRETE CURB (SPECIAL), which price shall include all labor, equipment, and material necessary to complete the work as specified.

X6064200 COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.12
(SPECIAL)

Description

This work shall consist of constructing combination concrete curb and gutter with a 17 inch top of curb width for subsequent bollard installation at 301 East Green Street. The curb and gutter shall be constructed as shown on the details in the plans, in accordance with Section 606 of the Standard Specifications, and as directed by the Engineer.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot for COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.12 (SPECIAL), which price shall include all labor, equipment, and material necessary to complete the work as specified.

X6300230 STEEL POSTS
Z0036700 PARKING METER POSTS TO BE REMOVED

Description

This work shall consist of the removal of existing parking meter posts and the installation of new parking meter posts in accordance with the details in the plans and as specified herein.

The City of Champaign will remove the existing parking meters and install the new parking meters. The Contractor shall contact the City of Champaign for removal of the existing parking meters and installation of the new parking meters.

The Contractor shall remove the existing parking meter posts at the locations shown on the plans or as directed by the Engineer. Existing parking meter posts that are removed shall not be reused.

The resultant voids at the removal locations shall be backfilled with controlled low-strength material as directed by the Engineer.

The Contractor shall furnish and install new parking meter posts at the locations shown on the plans or as directed by the Engineer. The parking meter posts shall be installed in accordance with the details in the plans or as directed by the Engineer.

Measurement and Payment

This work will be measured for payment as individual items and will be paid for at the contract unit price each for STEEL POSTS or PARKING METER POSTS TO BE REMOVED, which prices shall include all labor, equipment, and material necessary to complete the work as specified, including all excavation, controlled low-strength material, backfill, and core drilling of existing sidewalks.

X7015005 CHANGEABLE MESSAGE SIGN

Description

This work shall consist of furnishing, installing, maintaining, and removing portable changeable message signs in accordance with Section 701 of the Standard Specifications except that references to basis of payment shall be deleted.

Portable changeable message signs shall be erected at locations shown on the Traffic Control Plans or determined by the Engineer five (5) days prior to the start of construction operations and shall remain in place until two (2) days after the road is closed to forewarn motorists of the impending construction. All changeable message signs to be used on this project shall be solar powered as required by the specification for Traffic Control and Protection, (Special). The signs shall remain in place and operational until such time that the traffic control devices are in place for each stage. The sign message will be provided by the Engineer.

Measurement and Payment

This work will be measured and paid for at the contract unit price per calendar day for CHANGEABLE MESSAGE SIGN, which price shall include all labor, equipment, and material necessary to complete the work as specified, including all required maintenance and inspection. Any portion of one calendar day during which the sign is operated as directed by the Engineer will be paid as one full calendar day.

XX000717 STORM SEWER CONNECTION, SPECIAL

Description

This work shall consist of constructing drain pipes to outlet existing foundation or downspout drains or sump pump discharge pipes to a drainage structure or storm sewer in accordance with the “Storm Sewer Connection, Special” detail shown in the plans and as directed by the Engineer.

Materials

The pipe material shall be Storm Sewer, Class B, Type 1, 6” diameter with the necessary fittings to connect to the existing foundation drains.

The check valve assembly shall be 6” PVC with extendable backwater valve and screw in cap as manufactured by Clean Check, Inc., 2601 Spenwick Drive, Houston, Texas 77055, Phone 800-231-3345 or approved equal. Assemblies located within sidewalks and concrete driveways shall be provided with brass screw in caps with recessed nuts.

Construction Requirements

The exact locations of the existing foundation drains are unknown. The Contractor shall be responsible for locating the foundation drains and verifying the size, material type, and depth of the pipes. Backfilling under paved surfaces shall be performed with controlled low-strength material. The installation of the new drain lines will be as directed by the Engineer.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for STORM SEWER CONNECTION, SPECIAL, which price shall include all labor, equipment, and material necessary to complete the work as specified, including locating drains; excavating, furnishing, and installing the storm sewer pipe, fittings, and check valve assemblies; connections to drains, drainage structures, and storm sewers; concrete; and earth backfill. The controlled low-strength material used for backfilling the excavation will be paid for separately.

XX002176 CONCRETE STEP REMOVAL

Description

This work shall consist of the removal and disposal of existing concrete steps of various sizes in accordance with the applicable Articles of Section 501 of the Standard Specifications and the following additions or exceptions.

The existing concrete steps including footings shall be removed completely at the location shown on the plans and as directed by the Engineer. Handrails shall be removed and re-erected as shown on the details in the plans and as specified herein.

Measurement and Payment

This work will be measured and paid for at the contract lump sum price for CONCRETE STEP REMOVAL, which price shall include all labor, equipment, and material necessary for the satisfactory removal and disposal of the existing concrete steps. No additional compensation will be allowed because of variations from the assumed thickness or number of concrete steps or for variations in the amount of reinforcement. Removing and re-erecting the existing handrails will be paid for separately.

XX003915 BRICK WALL

Description

This work shall consist of the building a brick faced retaining wall to be contiguous with remaining portions of the brick retaining wall at the southeast corner of the intersection of Green Street and First Street. Concrete work and reinforcement shall be according to the applicable portions of Sections 503 and 508 of the Standard Specifications. This work includes excavation, backfill, incorporation of salvaged brick, provision for new brick, concrete masonry units, and stone coping.

Construction Requirements

The new portions of the retaining wall shall match in appearance the existing portion of the walls remaining along Green Street and First Street. The outer wythe of brick shall be toothed into the remaining portions of the brick wall to provide a uniform appearance as seen from the street.

Concrete for footings shall be Class SI concrete in accordance with Section 1020 of the Standard Specifications.

Masonry work on this project shall conform to all requirements of ACI 530.1, Specification for Masonry Structures, published by the American Concrete Institute (ACI), Detroit, Michigan.

Concrete masonry units shall be in accordance with ASTM C90, grade N, type I. New brick shall have a minimum compressive strength of 3000 psi on the gross area. Mortar shall conform to ASTM C270, type N mortar. Compressive strength of concrete masonry (f'_m) shall be 1500 psi minimum.

Compressive strength of brick masonry (f'm) shall be 1500 psi minimum.

Length of bar splices shall be equal to 48 bar diameters. Joint reinforcement shall be made of cold drawn wire and shall conform to ASTM A82. Joint reinforcement shall be (3) 9 ga, wire, ladder type for composite walls; (2) 9 ga, wire, ladder type for single wythe walls. Joint reinforcement, ties and anchors shall be galvanized in accordance with ACI 530.1. Joint reinforcement shall be placed in all masonry walls and spaced 16" o.c. All cells shall be fully grouted. Grout shall conform to ASTM C476 and shall have 28 day compressive strength of 2000 psi minimum.

Lay concrete masonry units with full mortar coverage on horizontal and vertical face shells and webs. All brick/cmu walls with no cavity are composite. Parge (backplaster) first wythe laid with mortar not less than 3/8" thick.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot for BRICK WALL, which price shall include all labor, equipment, and material necessary to complete the work as specified, including all backfill and disposal.

XX004951 CONCRETE STAIRS

Description

This work shall consist of the construction of concrete steps in accordance with applicable portions of Sections 502, 503, and 508 of the Standard Specifications, the details as shown in the plans, and as directed by the Engineer.

Construction Requirements

The concrete used for the steps and footings shall be Class SI in accordance with Section 1020 of the Standard Specifications.

Measurement and Payment

This work will be measured and paid for at the contract lump sum price for CONCRETE STAIRS, which price shall include all labor, equipment, and material necessary for the satisfactory placement of the concrete stairs. No additional compensation will be allowed for variations in the concrete step thickness, depth of concrete footings, or the amount or type of reinforcement used.

Single risers within the proposed sidewalk construction will not be paid for as concrete stairs but will be paid for at the contract unit price per square foot of top area for Portland Cement Concrete Sidewalk 6 Inch. No additional compensation will be allowed for variations in the concrete step thickness.

XX006991 BRICK FACADE

Description

This work shall consist of providing all materials, labor, equipment, and supervision necessary to provide clay facing brick facade and install as specified and as required in the drawings. This work shall be in accordance with ACI 530 Building Code Requirements for Masonry Structures.

Submittal Requirements

Provide manufacturer's product information for clay masonry units. Include manufacturer's certificate that masonry units meet or exceed specified requirements. Provide sample bricks two weeks prior to installation of mockup.

Mockup

Construct a masonry wall as a mockup panel sized 4 feet long by 4 feet high, which includes mortar and accessories and structural backup. Mockup shall match common brick pattern indicated on plans and shall be built adjacent to mockup of the thin brick veneer. Locate where directed by the Engineer.

Brick Units

Facing brick for façade shall meet or exceed ASTM C 216, Type FBS, Grade SW. The selected color shall match the thin brick veneer selected for GATEWAY MONUMENT SIGN COMPLETE. Provide squint blocks for constructing 135 degree corners as shown on the drawings.

Manufacturers:

- Belden Bricks, Inc: www.beldenbrick.com.
- Endicott Clay Products Co: www.endicott.com.
- Substitutions: Approved equal.

Mortar

Use Type N mortar for all masonry facades. Proportions for mortar shall be in accordance with ASTM C270, Type N. The compressive strength of mortar cube specimens shall be determined in accordance with ASTM C91 using the same materials and proportions that will be used for the mortar in the construction. Mortar shall have an average compressive strength at 28 days of 750 psi for Type N.

Anchorage

Provide dovetail anchor slots in concrete for securing masonry facing to concrete walls.

Dovetail anchors shall be 1" deep by 1" wide by 5/8" throat and shall be of 22 gauge Type 304 stainless steel. Slots shall be foam filled to prevent filling with concrete. Furnish staples and end caps. Dovetail anchors for anchoring masonry to steel shall be compatible with anchor slots. Anchors shall be 12 gauge stainless steel with corrugated ends 3" long.

Place anchor slots vertically at 16 inch horizontal centers for the entire height of wall. Fill slots with foam to prevent entrance of cement or grout. Set anchor slots straight at proper locations and securely fasten to forms to prevent displacement while concrete is being poured. In all cases slots shall extend for the full height of the masonry facing. Masonry shall be anchored to concrete with dovetail anchors spaced at 16 inch centers vertically along vertical anchor slots.

Metal flashing shall be stainless steel.

Construction Requirements

Cold and Hot Weather Requirements: Comply with requirements of ACI 530.

Verify that field conditions are acceptable and are ready to receive masonry. Verify that related items provided under other sections are properly sized and located. Verify that built-in items are in proper location, and ready for roughing into masonry work. Establish lines, levels, and coursing indicated. Protect from displacement. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work. Buttering corners of joints or excessive furrowing of mortar joints is not permitted. Remove excess mortar as work progresses. Interlock intersections and external corners. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.

Masonry Back-Up: Embed anchors to bond veneer at maximum 16 inches on center vertically and 16 inches on center horizontally. Place additional anchors at perimeter of openings and ends of panels, so maximum spacing of anchors is 8 inches on center.

Cut and fit for pipes and conduit. Coordinate with other sections of work to provide correct size, shape, and location. Obtain approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

Remove excess mortar and mortar smears as work progresses. Clean soiled surfaces with cleaning solution. Without damaging completed work, provide protective boards at exposed external corners that are subject to damage by construction activities.

Tolerances

Maximum Variation from Unit to Adjacent Unit: 1/16 inch.

Maximum Variation from Plane of Wall: 1/4 inch in 10 ft and 1/2 inch in 20 ft or more.

Maximum Variation from Plumb: 1/4 inch per 10 ft.

Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 10 ft; 1/2 inch in 30 ft.

Maximum Variation of Joint Thickness: 1/8 inch in 3 ft.

Measurement and Payment

This work will be measured and paid for at the contract unit price per square foot for BRICK FAÇADE, which price shall include all labor, equipment, and material necessary to complete the work as specified, including all bricks, anchors, mortar, flashings, and weep holes.

XX007100 LIMESTONE CAP

Description

This work shall consist of providing all materials, labor, equipment, and supervision necessary to provide precast limestone caps as required in these specifications and the drawings. This work shall be coordinated to match in appearance the precast elements required for the GATEWAY MONUMENT SIGN COMPLETE. This work shall be in accordance with the details in the plans and the applicable portions of Section 1042 of the Standard Specifications.

Submittal Requirements

Provide manufacturer's product information (cut sheets) for materials used during concrete construction including concrete admixtures and integrally colored concrete admixture. Provide sample, 2 feet long, illustrating color, finish and texture. Provide sample of color matched sealant to be used between joints.

Before beginning fabrication, the Contractor shall submit shop drawings showing dimensions of each unit and layout of units.

Products

Pigment: Pigment for integrally colored concrete shall be added and mixed per the Manufacturer's recommendations in coordination with the fabricator. The amount of dry colored pigment shall not exceed 10 percent by weight of the cementitious materials in the concrete mix design.

Pigment for Integrally Colored Concrete. The pigment shall meet the requirements of ASTM C 979, with limestone color. Acceptable products shall be selected among the following or an approved equal:

- Uni-Mix® Integral Color by Butterfield Color (630-906-1980)
- Mix-Ready® by Davis Colors (800-638-4444)
- ChromixP by Scofield Systems (800-800-9900)
- ColorFlo® Dry Integral Color by Solomon Colors Inc. (800-624-0261)

All cast-in metals, including reinforcing bars and wire mesh shall be hot-dipped galvanized or epoxy coated. All pins and rods connecting precast elements to each other and to base shall be Type 304 stainless steel.

Concrete Mix: Minimum 5000 psi compressive 28 day strength, air entrained 6 to 8 percent in accordance with ACI 301. Maximum water-to-cement ratio: 0.45:1. Finish shall be honed.

Manufacturer/Installer shall warrant installed system for a period of (1) one year from date of substantial completion against failure of workmanship and materials.

Fabrication

Use rigid molds or forms to maintain precast unit uniform in shape, size, and finish. Fabricate connecting devices, plates, angles, inserts, bolts, and accessories. Embed reinforcing steel, anchors, inserts plates, angles, and other cast-in items. Aggregate shall not be exposed. Remove form release agent and similar contaminants prior to sealing. Ensure exposed-to-view finish surfaces of precast units are uniform in color and appearance. Variation from dimensions indicated on drawings: plus or minus 1/8 inch.

Construction Requirements

Verify concrete walls and brick façades, including anchors are ready to receive precast members. Install units without damage to shape or finish. Replace or repair damaged units. Erect units level and plumb within allowable tolerances. Align and maintain uniform horizontal and vertical joints as erection progresses. Seal joints in accordance with color matched UV resistant sealant recommended by the fabricator.

Tolerances

Maximum Offset from Indicated Alignment Between Two Connecting Units: 1/4 inch.

Joint Tolerance: Plus or minus 1/8 inch. Adjust units so joint dimensions are within tolerances.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot for LIMESTONE CAP, which price shall include all labor, equipment, and material necessary to complete the work as specified, including all fabrication and coordination.

XX007245 CONCRETE SADDLE SUPPORT

Description

This work shall consist of constructing concrete saddle supports around existing or proposed utilities to protect the pipes from damage or collapsing at the locations shown in the plans. The saddle supports shall be constructed as shown on the detail in the plans and as directed by the Engineer.

The concrete for the saddle support shall be Class SI in accordance with Section 1020 of the Standard Specifications. The reinforcement bars shall be in accordance with Article 1006.10 of the Standard Specifications. The excavated area shall be backfilled with earth or controlled low-strength material as shown on the detail.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for CONCRETE SADDLE SUPPORT, which price shall include all labor, equipment, and material necessary to complete the work as specified, including all required concrete, reinforcement bars, excavation, and earth backfill. The controlled low-strength material required for backfilling the excavation will be paid for separately.

XX007562 SIGN REMOVAL, SPECIAL

Description

This work shall consist of removing existing private business signs at locations shown in the plans and as directed by the Engineer. This work shall be performed in accordance with the applicable Articles of Sections 501 and 842 of the Standard Specifications with the following additions or exceptions.

The Contractor shall be responsible for removing the existing sign and delivering the sign to the respective owner. The delivery location shall be limited to Champaign and Urbana city limits. The Contractor shall take care not to damage the sign during his or her removal operations and shall provide the necessary protection to prevent damage. The Contractor shall be responsible for any unnecessary damage to the existing sign at his or her own expense.

The Contractor shall be responsible for removing any electrical connections at the existing sign and at the point of service as directed by the Engineer.

The Contractor shall be responsible for the complete removal of the existing sign foundations. The resultant voids at the removal locations shall be backfilled with controlled low-strength material as directed by the Engineer.

Measurement and Payment

This work will be measured and paid for at the contract lump sum price for SIGN REMOVAL, SPECIAL, which price shall include all labor, equipment, and material necessary for the satisfactory removal, salvaging, and delivery of the existing business signs, including all excavation and backfill. No additional compensation will be allowed because of variations with existing installation conditions or for variations in the amount of reinforcement.

XX007733 SALVAGED AGGREGATE MATERIAL 8”
XX007734 SALVAGED AGGREGATE MATERIAL 12”

Description

This work shall consist of transporting, spreading, grading, and compacting milled asphalt material salvaged from the hot-mix asphalt surface removal operations as directed by the Engineer. The salvaged material shall be used as a substitute for aggregate base course, aggregate for temporary access, or other aggregate materials designated by the Engineer. This work shall be in accordance with the applicable Articles of Sections 301, 311, 351, and 402 of the Standard Specifications.

Construction Requirements

The salvaged aggregate material shall be no larger than 1½” diameter and shall be free of contamination with earth or other foreign materials. Any excess or unsuitable materials determined not to be usable by the Engineer shall be disposed of off-site by the Contractor. The material shall be placed and compacted in lifts with a maximum lift thickness of 4 inches when used as aggregate base course and a maximum lift thickness of 8 inches when used as aggregate for temporary access.

Rollers and compaction requirements shall meet the requirements of Sections 351 and 402 of the Standard Specifications and to the satisfaction of the Engineer.

Measurement and Payment

This work will be measured and paid for at the contract unit price per square yard for SALVAGED AGGREGATE MATERIAL of the thickness specified, which price shall include all labor, equipment, and material necessary to complete the work as specified, including transporting, spreading, grading, and compacting the salvaged material. The quantities for the materials that are being substituted for shall be reduced by an equal amount. The Engineer may reduce or delete any of these pay items, in which case no additional payment will be made to the Contractor. The hot-mix asphalt surface removal operation will be paid for separately as specified herein.

XX008086 BLOCK RETAINING WALL

Description

This work shall consist of the building a concrete masonry unit (CMU) wall along the face of the existing building and walls of the property at 604 South Neil Street. The wall is parallel to the Green Street side of the property. This work includes furnishing and installing waterproofing and foam board. Reinforcement shall be according to the applicable portions of Sections 508 of the Standard Specifications. Concrete for footings shall be measured and paid for according to Concrete Structures (Special).

Materials

Masonry materials shall be as required on the plans.

Waterproofing shall be by one of two product types and installed according to the manufacturer's instructions:

- 1) Self-adhering sheet waterproofing: Carlisle CCW Miradri of equal.
- 2) Fluid Applied: W.R. Meadows Mel-Rol LM or equal.

Foam Board shall be extruded polystyrene (XPS). Product shall be Owens Corning Formular 150 XPS or equal.

Construction Requirements

Masonry work on this project shall conform to all requirements of ACI 530.1, Specification for Masonry Structures, published by the American Concrete Institute (ACI), Detroit, Michigan.

Lay concrete masonry units with full mortar coverage on horizontal and vertical face shells and webs. All brick/cmu walls with no cavity are composite. Parge (backplaster) first wythe laid with mortar not less than 3/8" thick.

Measurement and Payment

This work will be measured and paid for at the contract unit price per square foot for BLOCK RETAINING WALL, which price shall include all labor, equipment, and material necessary to complete the work as specified.

XX008113 SEWER PIPE BULKHEAD 60"

Description

This work shall consist of constructing permanent bulkheads within an existing brick arch storm sewer at locations shown on the plans. The work shall be performed as specified on the plans. The bulkhead fills the annular space between new concrete pipe and the interior surface of the existing brick arch. This work includes engineering, shoring plans, temporary shoring, temporary earth retention to protect adjacent facilities and property, and partial removal of the brick arch.

Submittals

The Contractor shall have shoring plans and temporary earth retention systems designed by a Structural Engineer licensed in the State of Illinois. Shoring plans, and temporary earth retention plans shall be sealed by the Structural Engineer and submitted to the City of Champaign for their records.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for SEWER PIPE BULKHEAD 60", which price shall include all labor, equipment, and material necessary to complete the work as specified, including all engineering, temporary shoring, and temporary earth retention.

XX008741 STORM SEWERS, CLASS B, TYPE 2 8”

Description

This work shall consist of constructing storm sewers of the class, type, and diameter specified in accordance with Section 550 of the Standard Specifications.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot for STORM SEWERS, CLASS B, TYPE 2 8”, which price shall include all labor, equipment, and material necessary to complete the work as specified. The pipe types shown on the plans refer to the fill heights over the pipe as indicated in Article 550.03 of the Standard Specifications.

XX008979 CONCRETE COLLAR

Description

This work shall consist of constructing concrete collars around joints of pipes where the pipes being joined are of different diameters or types of materials. The collars shall be as shown on the detail in the plans and shall be constructed with Class SI concrete in accordance with Section 1020 of the Standard Specifications. The excavation and backfilling shall be as specified for the associated pipe installation.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for CONCRETE COLLAR, which price shall include all labor, equipment, and material necessary to complete the work as specified, including the welded wire fabric.

**Z0007112 CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING
RESIDUES**

Description

This work shall consist of the containment, collection, temporary storage, transportation and disposal of waste from lead paint removal projects. Waste requiring containment and control includes, but is not limited to, old paint, spent abrasives, corrosion products, mill scale, dirt, dust, grease, oil, salts, and water used for cleaning the surface of existing lead coatings prior to overcoating.

General

The existing coatings contain lead and may also contain other toxic metals. This specification provides the requirements for containment and for the protection of the public, and the environment from exposure to harmful levels of toxic metals that may be present in the paint being removed or repaired. The Contractor shall take reasonable and appropriate precautions to protect the public from

the inhalation or ingestion of dust or debris from the operations, and is responsible for the clean-up of all spills of waste at no additional cost to the Department.

The Contractor shall comply with the requirements of this Specification and all applicable Federal, State, and Local laws, codes, and regulations, including, but not limited to the regulations of the United States Environmental Protection Agency (USEPA), Occupational Safety and Health Administration (OSHA), and Illinois Environmental Protection Agency (IEPA). The Contractor shall comply with all applicable regulations even if the regulation is not specifically referenced herein. If a Federal, State, or Local regulation is more restrictive than the requirements of this Specification, the more restrictive requirements shall prevail.

Submittals

The Contractor shall submit for Engineer review and acceptance, the following drawings and plans for accomplishing the work. The submittals shall be provided within 30 days of execution of the contract unless given written permission by the Engineer to submit them at a later date. Work cannot proceed until the submittals are accepted by the Engineer. Details for each of the plans are presented within the body of this specification. The Contractor shall also maintain on site, copies of the standards and regulations referenced herein (list provided in appendix 1).

- a) Containment Plans. The containment plans shall include drawings, equipment specifications, and calculations (wind load, air flow and ventilation when negative pressure is specified. The plans shall include copies of the manufacturer's specifications for the containment materials and equipment that will be used to accomplish containment and ventilation.

When required by the contract plans, the submittal shall provide calculations that assure the structural integrity of the bridge when it supports the containment and the calculations and drawings shall be signed and sealed by a Structural Engineer licensed in the state of Illinois.

When working over the railroad or navigable waterways, the Department will notify the respective agencies that work is being planned. Unless otherwise noted in the plans, the Contractor is responsible for follow up contact with the agencies, and shall provide evidence that the railroad, Coast Guard, Corps of Engineers, and other applicable agencies are satisfied with the clearance provided and other safety measures that are proposed.

- b) Environmental Monitoring Plan. The Environmental Monitoring Plan shall address the visual inspections and clean up of the soil and water that the Contractor will perform, including final project inspection and cleanup. The plan shall address the daily visible emissions observations that will be performed and the corrective action that will be implemented in the event emissions or releases occur. When high volume ambient air monitoring is required, an Ambient Air Monitoring Plan shall be developed. The plan shall include:

- Proposed monitor locations and power sources in writing. A site sketch shall be included, indicating sensitive receptors, monitor locations, and distances and directions from work area.
 - Equipment specification sheet for monitors to be used, and a written commitment to calibrate and maintain the monitors.
 - Include a procedure for operation of monitors per 40 CFR 50, Appendix B, including use of field data chain-of-custody form. Include a sample chain of custody form.
 - Describe qualifications/training of monitor operator.
 - The name, contact information (person's name and number), and certification of the laboratory performing the filter analysis. Laboratory shall be accredited by one of the following: 1) the American Industrial Hygiene Association (AIHA) for lead (metals) analysis, 2) Environmental Lead Laboratory Accreditation Program (ELLAP) for metals analysis, 3) State or federal accreditation program for ambient air analysis or, 4) the EPA National Lead Laboratory Accreditation Program (NLLAP) for lead analysis. The laboratory shall provide evidence of certification, a sample laboratory chain-of-custody form, and sample laboratory report that provides the information required by this specification. The laboratory shall also provide a letter committing to do the analysis per 40 CFR 50, Appendix G. If the analysis will not be performed per 40 CFR Appendix G, a proposed alternate method shall be described, together with the rationale for using it. The alternate method cannot be used unless specifically accepted by the Engineer in writing.
- c) Waste Management Plan. The Waste Management Plan shall address all aspects of handling, storage, testing, hauling and disposal of all project waste, including waste water. Include the names, addresses, and a contact person for the proposed licensed waste haulers and disposal facilities. Submit the name and qualifications of the laboratory proposed for Toxicity Characteristic Leaching Procedure (TCLP) analysis. If the use of abrasive additives is proposed, provide the name of the additive, the premixed ratio of additive to abrasive being provided by the supplier, and a letter from the supplier of the additive indicating IEPA acceptance of the material. Note that the use of any steel or iron based material, such as but not limited to grit, shot, fines, or filings as an abrasive additive is prohibited. The plan shall address weekly inspections of waste storage, maintaining an inspection log, and preparing a monthly waste accumulation inventory table.
- d) Contingency Plan. The Contractor shall prepare a contingency plan for emergencies including fire, accident, failure of power, failure of dust collection system, failure of supplied air system or any other event that may require modification of standard operating procedures during lead removal. The plan shall include specific procedures to ensure safe egress and proper medical attention in the event of an emergency.

When the Engineer accepts the submittals, the Contractor will receive written notification. The Contractor shall not begin any work until the Engineer has accepted the submittals. The Contractor shall not construe Engineer acceptance of the submittals to imply approval of any particular method

or sequence for conducting the work, or for addressing health and safety concerns. Acceptance of the plans does not relieve the Contractor from the responsibility to conduct the work according to the requirements of Federal, State, or Local regulations, this specification, or to adequately protect the health and safety of all workers involved in the project and any members of the public who may be affected by the project. The Contractor remains solely responsible for the adequacy and completeness of the programs and work practices, and adherence to them.

Quality Control (QC) Inspections

The Contractor shall perform first line, in process QC inspections of all environmental control and waste handling aspects of the project to verify compliance with these specification requirements and the accepted drawings and plans. The Contractor shall use the IDOT Environmental Daily Report form to record the results of the inspections. Alternative forms (paper or electronic) will be allowed provided they furnish equivalent documentation as the IDOT form, and they are accepted as part of the QC Program submittal. The completed reports shall be turned into the Engineer before work resumes the following day. Contractor QC inspections shall include, but not be limited to the following:

- Proper installation and continued performance of the containment system(s) in accordance with the approved drawings.
- Visual inspections of emissions into the air and verification that the cause(s) for any unacceptable emissions is corrected.
- Set up, calibration, operation, and maintenance of the regulated area and high volume ambient air monitoring equipment, including proper shipment of cassettes/filters to the laboratory for analysis. Included is verification that the Engineer receives the results within the time frames specified and that appropriate steps are taken to correct work practices or containment in the event of unacceptable results.
- Visual inspections of spills or deposits of contaminated materials into the water or onto the ground, pavement, soil, or slope protection. Included is verification that proper cleanup is undertaken and that the cause(s) of unacceptable releases is corrected.
- Proper implementation of the waste management plan including laboratory analysis and providing the results to the Engineer within the time frames specified herein.
- Proper implementation of the contingency plans for emergencies.

The personnel providing the QC inspections shall pose current SSPC-C3 certification or equal, including the annual training necessary to maintain that certification (SSPC-C5 or equal), and shall provide evidence of successful completion of 2 bridge lead paint removal projects of similar or greater complexity and scope that have been completed in the last 2 years. References shall include the name, address, and telephone number of a contact person employed by the bridge owner. Proof of initial certification and the current annual training shall also be provided.

Quality Assurance (QA) Observations

The Engineer will conduct QA observations of any or all of the QC monitoring inspections that are undertaken. The presence or activity of Engineer observations in no way relieves the Contractor of the responsibility to provide all necessary daily QC inspections of its own and to comply with all requirements of this Specification.

Containment Requirements

The Contractor shall install and maintain containment systems surrounding the work for the purpose of controlling emissions of dust and debris according to the requirements of this specification. Working platforms and containment materials that are used shall be firm and stable and platforms shall be designed to support the workers, inspectors, spent surface preparation media (e.g., abrasives), and equipment during all phases of surface preparation and painting. Platforms, cables, and other supporting structures shall be designed according to OSHA regulations. If the containment needs to be attached to the structure, the containment shall be attached by bolting, clamping, or similar means. Welding or drilling into the structure is prohibited unless approved by the Engineer in writing.

The containment shall be dropped in the event of sustained winds of 40 mph (64 kph) or greater and all materials and equipment secured.

The Contractor shall provide drawings showing the containment system and indicating the method(s) of supporting the working platforms and containment materials to each other and to the bridge. When the use of negative pressure and airflow inside containment is specified, the Contractor shall provide all ventilation calculations and details on the equipment that will be used for achieving the specified airflow and dust collection.

When directed in the contract plans, the Contractor shall submit calculations and drawings, signed and sealed by a Structural Engineer licensed in the state of Illinois, that assure the structural integrity of the bridge under the live and dead loads imposed, including the design wind loading.

When working over railroads, the Contractor shall provide evidence that the proposed clearance and the safety provisions that will be in place (e.g., flagman) are acceptable to the railroad. In the case of work over navigable waters, the Contractor shall provide evidence that the proposed clearance and provisions for installing or moving the containment out of navigation lanes is acceptable to authorities such as the Coast Guard and Army Corps of Engineers. The Contractor shall include plans for assuring that navigation lighting is not obscured, or if it is obscured, that temporary lighting is acceptable to the appropriate authorities (e.g., Coast Guard) and will be utilized.

Engineer review and acceptance of the drawings and calculations shall not relieve the Contractor from the responsibility for the safety of the working platforms and containment, and for providing ample ventilation to control worker and environmental exposures. After the work platforms and containment materials are erected additional measures may be needed to ensure worker safety

according to OSHA regulations. The Contractor shall institute such measures at no additional cost to the Department.

Containment for the cleaning operation of this contract is defined as follows:

- The containment system shall maintain the work area free of visible emissions of dust and debris according to all provisions of this Specification, with no debris permitted outside of the regulated area at any time. All debris within the regulated area and within the containment shall be collected at the end of the last shift each day, and properly stored in sealed containers. Cleaning shall be accomplished by HEPA vacuuming unless it is conducted within a containment that is designed with a ventilation system capable of collecting the airborne dust and debris created by sweeping and blowing with compressed air. The ventilation system shall be in operation during the cleaning.
- The containment systems shall comply with the specified SSPC Guide 6 classifications as presented in Table 1 for the method of paint removal utilized.
- TSP-lead in the air at monitoring locations selected by the Contractor shall comply with the requirements specified herein.

The Contractor shall take appropriate action to avoid personnel injury or damage to the structure from the installation and use of the containment system. If the Engineer determines that there is the potential for structural damage caused by the installed containment system, the Contractor shall take appropriate action to correct the situation.

In addition to complying with the specific containment requirements in Table 1 for each method of removal, the Contractor shall provide and maintain coverage over the ground in the areas to be cleaned. This coverage shall be capable of catching and containing surface preparation media, paint chips, and paint dust in the event of an accidental escape from the primary containment. The containment materials shall be cleaned of loose material prior to relocation or dismantling. Acceptable methods of cleaning include blowing down the surfaces with compressed air while the ventilation system is in operation, HEPA vacuuming, and/or wet wiping. If paint chips or dust is observed escaping from the containment materials during moving, all associated operations shall be halted and the materials and components re-cleaned.

The containment systems shall also meet the following requirements:

- a) Dry Abrasive Blast Cleaning - Full Containment with Negative Pressure (SSPC Class 1A)

The enclosure shall be designed, installed, and maintained to sustain maximum anticipated wind forces, including negative pressure. Flapping edges of containment materials are prohibited and the integrity of all containment materials, seams, and seals shall be maintained for the duration of the project. Airflow inside containment shall be designed to provide visibility and reduce worker exposures to toxic metals according to OSHA regulations and as specified in Table 1 and its accompanying text. When the location of the work on the bridge, or over lane closures permit,

the blast enclosure shall extend a minimum of 3 ft. (1 m) beyond the limits of surface preparation to allow the workers to blast away from, rather than into the seam between the containment and the structure. The blast enclosure shall have an airlock or resealable door entryway to allow entrance and exit from the enclosure without allowing the escape of blasting residue.

If recyclable metallic abrasives are used, the Contractor shall operate the equipment in a manner that minimizes waste generation. Steps shall also be taken to minimize dust generation during the transfer of all abrasive/paint debris (expendable or recyclable abrasives) for recycling or disposal. Acceptable methods include, but are not limited to vacuuming, screw or belt conveyance systems, or manual conveyance. However manual conveyance is only permitted if the work is performed inside a containment that is equipped with an operating ventilation system capable of controlling the dust that is generated.

Appropriate filtration shall be used on the exhaust air of dust collection and abrasive recycling equipment as required to comply with IEPA regulations. The equipment shall be cleaned/maintained, enclosed, or replaced if visible dust and debris are being emitted and/or the regulated area or high volume monitor lead levels are not in compliance

Areas beneath containment connection points that were shielded from abrasive blast cleaning shall be prepared by vacuum blast cleaning or vacuum-shrouded power tool cleaning after the containment is removed.

b) Vacuum Blast Cleaning within Containment (SSPC-Class 4A)

Vacuum blasting equipment shall be fully automatic and capable of cleaning and recycling the abrasive. The system shall be designed to deliver cleaned, recycled blasting abrasives and provide a closed system containment during blasting. The removed coating, mill scale, and corrosion shall be separated from the abrasive, and stored for disposal.

The Contractor shall attach containment materials around and under the work area to catch and contain abrasive and waste materials in the event of an accidental escape from the vacuum shroud. This containment is in addition to the ground covers specified earlier.

It is possible that the close proximity of some structural steel members, such as the end diaphragms or end cross-frames underneath transverse deck expansion joints, preclude the use of the vacuum blasting equipment for the removal of the old paint. For surfaces that are inaccessible for the nozzles of the vacuum blasting equipment, the Contractor shall remove the paint by means of full containment inside a complete enclosure as directed by the Engineer.

c) Vacuum-Shrouded Power Tool Cleaning within Containment (SSPC-Class 3P)

The Contractor shall utilize power tools equipped with vacuums and High Efficiency Particulate Air (HEPA) filters. The Contractor shall attach containment walls around the work area, and

install containment materials beneath the work area to catch and contain waste materials in the event of an accidental escape from the vacuum shroud. This containment is in addition to the ground covers specified earlier and shall be installed within 10 ft. (3m) of the areas being cleaned.

d) Power Tool Cleaning without Vacuum, within Containment (SSPC-Class 2P)

When the use of power tools without vacuum attachments is authorized by the Engineer, the Contractor shall securely install containment walls and flooring around the work area to capture and collect all debris that is generated. The containment material requirements for this Class 2P are similar to Class 3P used for vacuum-shrouded tools, but the supporting structure will be more substantial in Class 2P to better secure the containment materials from excessive movement that could lead to the loss of waste paint chips and debris. Containment beneath the work shall be within 10 ft. (3m) of the areas being cleaned, and is in addition to the ground covers specified earlier.

e) Water Washing, Water Jetting or Wet Abrasive Blast Cleaning within Containment (SSPC Class 2W-3W)

Water washing of the bridge for the purpose of removing chalk, dirt, grease, oil, bird nests, and other surface debris, and water jetting or wet abrasive blast cleaning for the purpose of removing paint and surface debris shall be conducted within a containment designed, installed, and maintained in order to capture and contain all water and waste materials. The containment shall consist of impermeable floors and lower walls to prevent the water and debris from escaping. Permeable upper walls and ceilings are acceptable provided the paint chips, debris, and water, other than mists, are collected. A fine mist passing through the permeable upper walls is acceptable, provided the environmental controls specified below are met. If paint chips, debris, or water, other than mists, escape the containment system, impermeable walls and ceilings shall be installed.

When water is used for surface cleaning, the collected water shall be filtered to separate the particulate from the water. Recycling of the water is preferred in order to reduce the volume of waste that is generated. The water after filtration shall be collected and disposed of according to the waste handling portions of this specification.

When a slurry is created by injecting water into the abrasive blast stream, the slurry need not be filtered to separate water from the particulate.

Environmental Controls and Monitoring

The Contractor shall prepare and submit to the Engineer for review and acceptance, an Environmental Monitoring Plan. The purpose of the plan is to address the observations and equipment monitoring undertaken by the Contractor to confirm that project dust and debris are not escaping the containment into the surrounding air, soil, and water.

- a) **Soil and Water.** Containment systems shall be maintained to prevent the escape of paint chips, abrasives, and other debris into the water, and onto the ground, soil, slope protection, and pavements. Releases or spills of, paint chips, abrasives, dust and debris that have become deposited on surrounding property, structures, equipment or vehicles, and bodies of water are unacceptable. If there are inadvertent spills or releases, the Contractor shall immediately shut down the emissions-producing operations, clean up the debris, and change work practices, modify the containment, or take other appropriate corrective action as needed to prevent similar releases from occurring in the future.

Water booms, boats with skimmers, or other means as necessary shall be used to capture and remove paint chips or project debris that falls or escapes into the water.

At the end of each workday at a minimum, the work area inside and outside of containment, including ground tarpaulins, shall be inspected to verify that paint debris is not present. If debris is observed, it shall be removed by hand and HEPA-vacuuming. If wet methods of preparation are used, the damp debris can remain overnight provided it is protected from accidental release by securely covering the waste, folding the waste into the ground tarps, or by other acceptable methods. Prior to commencing work the next day, the debris from the folded ground tarps shall be removed.

Upon project completion, the ground and water in and around the project site are considered to have been properly cleaned if paint chips, paint removal media (e.g., spent abrasives), fuel, materials of construction, litter, or other project debris have been removed.

NOTE: All project debris must be removed even if the debris (e.g., spent abrasive and paint chips) was a pre-existing condition.

- b) **Visible Emissions.** The Contractor shall conduct observations of visible emissions and releases on an ongoing daily basis when dust-producing activities are underway, such as paint removal, clean up, waste handling, and containment dismantling or relocation. Note that visible emissions observations do not apply to the fine mist that may escape through permeable containment materials when wet methods of preparation are used.

Visible emissions in excess of SSPC-TU7, Method A (Timing Method), Level 1 (1% of the workday) are unacceptable. In an 8-hour workday, this equates to emissions of a cumulative duration no greater than 5 minutes.. This criterion applies to scattered, random emissions of short duration. Sustained emissions from a given location (e.g., 1 minute or longer), regardless of the total length of emissions for the workday, are unacceptable and action shall be initiated to halt the emission.

If unacceptable visible emissions or releases are observed, the Contractor shall immediately shut down the emission-producing operations, clean up the debris, and change work practices, modify the containment, or take other appropriate corrective action as needed to prevent similar releases from occurring in the future.

c) Ambient Air Monitoring. The Contractor shall perform ambient air monitoring according to the following:

- Monitor Siting. The Contractor shall collect and analyze air samples to evaluate levels of TSP-lead if there are sensitive receptors within 5 times the height of the structure or within 1000 ft. (305 m) of the structure, whichever is greater. If sensitive receptors are not located within these limits, monitoring is not required. Sensitive receptors are areas of public presence or access including, but not limited to, homes, schools, parks, playgrounds, shopping areas, livestock areas, and businesses. The motoring public is not considered to be a sensitive receptor for the purpose of ambient air monitoring.

The Contractor shall locate the monitors according to Section 7.3 of SSPC-TU-7, in areas of public exposure and in areas that will capture the maximum pollutant emissions resulting from the work. The Contractor shall identify the recommended monitoring sites in the Ambient Air Monitoring Plan, including a sketch identifying the above. The monitors shall not be sited until the Engineer accepts the proposed locations. When possible, monitors shall be placed at least 30 feet (9 m) away from highway traffic.

- Equipment Provided by Contractor. The Contractor shall provide up to 4 monitors per work site and all necessary calibration and support equipment, power to operate them, security (or arrangements to remove and replace the monitors daily), filters, flow chart recorders and overnight envelopes for shipping the filters to the laboratory. The number of monitors required will be indicated in the Plan Notes. Each monitor shall be tagged with the calibration date.
- Duration of Monitoring. Monitoring shall be performed for the duration of dust-producing operations (e.g., paint removal, waste handling, containment clean-up and movement, etc.) or a minimum of 8 hours each day (when work is performed).

The monitoring schedule shall be as follows:

1. For dry abrasive blast cleaning monitoring shall be conducted full time during all days of dust-producing operations (e.g., paint removal, waste handling, containment movement, etc.).
2. For wet abrasive blast cleaning, water jetting, or power tool cleaning, monitoring shall be conducted for the first 5 days of dust producing operations. If the results after 5 days are acceptable, monitoring may be discontinued. If the results are unacceptable, corrective action shall be initiated to correct the cause of the emissions, and monitoring shall

continue for an additional 5 days. If the results are still unacceptable, the Engineer may direct that the monitoring continue full time.

3. When monitoring is discontinued, if visible emissions are observed and/or the Contractor's containment system changes during the course of the project, then air monitoring will again be required for a minimum of two consecutive days until compliance is shown.
- Background Monitoring. Background samples shall be collected for two days prior to the start of work while no dust producing operations are underway to provide a baseline. The background monitoring shall include one weekday and one weekend day. The background monitoring shall coincide with the anticipated working hours for the paint removal operations, but shall last for a minimum of 8 hours each day.
 - Monitor Operation and Laboratory Analysis. The Contractor shall calibrate the monitors according to the manufacturer's written instructions upon mobilization to the site and quarterly. Each monitor shall be tagged with the calibration date, and calibration information shall be provided to the Engineer upon request.

All ambient air monitoring shall be performed by the Contractor according to the accepted Ambient Air Monitoring Plan and according to EPA regulations 40 CFR Part 50 Appendix B, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere (High-Volume Method), and 40 CFR Part 50 Appendix G, Reference Method for the Determination of Lead in Suspended Particulate Matter Collected from Ambient Air.

Filters shall be placed in monitors and monitors operated each day prior to start of dust-producing operations and the filters removed upon completion each day. The Contractor shall advise the Engineer in advance when the filters will be removed and replaced. The monitor operator shall record the following information, at a minimum, on field data and laboratory chain-of-custody forms (or equivalent):

1. Monitor location and serial number
2. Flow rate, supported by flow charts
3. Start, stop times and duration of monitoring
4. Work activities and location of work during the monitoring period
5. Wind direction/speed

For the first 5 days of monitoring, the Contractor shall submit the filters, field data and laboratory chain-of-custody forms together with the flow chart recorders (i.e. monitor flow rate and the duration of monitoring) on a daily basis in an overnight envelope to the laboratory for analysis. The laboratory must provide the Engineer with written results no later than 72 hours after the completion of each day's monitoring. At the discretion of the Engineer, if the initial 5 days of monitoring on full time monitoring projects is acceptable, the filters may be sent to the laboratory every 3 days rather than every day. Written results

must be provided to the Engineer no later than 5 days after the completion of monitoring for the latest of the 3 days.

- Ambient Air Monitoring Results. The laboratory shall provide the report directly to the Engineer with a copy to the contractor. The report shall include:
 1. Monitor identification and location
 2. Work location and activities performed during monitoring period
 3. Monitor flow rate, duration, and volume of air sampled
 4. Laboratory methods used for filter digestion / analysis
 5. Sample results for the actual duration of monitoring
 6. Sample results expressed in terms of a 24 hour time weighted average. Assume zero for period not monitored.
 7. Comparison of the results with the acceptance criteria indicating whether the emissions are compliant.
 8. Field data and chain-of-custody records used to derive results.

Should revised reports or any information regarding the analysis be issued by the laboratory directly to the Contractor at any time, the contractor shall immediately provide a copy to the Engineer and advise the laboratory that the Engineer is to receive all information directly from the laboratory.

- Acceptance Criteria. TSP-lead results at each monitor location shall be less than 1.5 $\mu\text{g}/\text{cu m}$ per calendar quarter converted to a daily allowance using the formulas from SSPC- TU7 as follows, except that the maximum 24-hour daily allowance shall be no greater than 6 $\mu\text{g}/\text{cu m}$.

The formula for determining a 24-hour daily value based on the actual number of paint disturbance days expected to occur during the 90-day quarter is:

$$\text{DA} = (90 \div \text{PD}) \times 1.5 \mu\text{g}/\text{cu m}, \text{ where}$$

DA is the daily allowance, and

PD is the number of preparation days anticipated in the 90-day period

If the DA calculation is $> 6.0 \mu\text{g}/\text{cu m}$, use $6.0 \mu\text{g}/\text{cu m}$.

Regulated Areas

Physically demarcated regulated area(s) shall be established around exposure producing operations at the OSHA Action Level for the toxic metal(s) present in the coating. The Contractor shall provide all required protective clothing and personal protective equipment for personnel entering into a regulated area. Unprotected street clothing is not permitted within the regulated areas.

Hygiene Facilities/Protective Clothing/Blood Tests

The Contractor shall provide clean lavatory and hand washing facilities according to OSHA regulations and confirm that employees wash hands, forearms, and face before breaks. The facilities shall be located at the perimeter of the regulated area in close proximity to the paint removal operation. Shower facilities shall be provided when workers' exposures exceed the Permissible Exposure Limit. Showers shall be located at each bridge site, or if allowed by OSHA regulations, at a central location to service multiple bridges. The shower and wash facilities shall be cleaned at least daily during use.

All wash and shower water shall be filtered and containerized. The Contractor is responsible for filtration, testing, and disposal of the water.

The Contractor shall make available to all IDOT project personnel a base line and post project blood level screening for lead and zinc protoporphyrin (ZPP) (or the most current OSHA requirement) levels as determined by the whole blood lead method, utilizing the Vena-Puncture technique. This screening shall be made available every 2 months for the first 6 months, and every 6 months thereafter.

The Contractor shall provide IDOT project personnel with all required protective clothing and equipment, including disposal or cleaning. Clothing and equipment includes but is not limited to disposable coveralls with hood, booties, disposable surgical gloves, hearing protection, and safety glasses. The protective clothing and equipment shall be provided and maintained on the job site for the exclusive, continuous and simultaneous use by the IDOT personnel. This equipment shall be suitable to allow inspection access to any area in which work is being performed.

All handwash and shower facilities shall be fully available for use by IDOT project personnel.

Site Emergencies

a) Stop Work. The Contractor shall stop work at any time the conditions are not within specifications and take the appropriate corrective action. The stoppage will continue until conditions have been corrected. Standby time and cost required for corrective action is at the Contractor's expense. The occurrence of the following events shall be reported in writing to IDOT and shall require the Contractor to automatically stop lead paint removal and initiate clean up activities.

- Airborne lead levels at any of the high volume ambient air monitoring locations that exceed the limits in this specification, or airborne lead in excess of the OSHA Action Level at the boundary of the regulated area.
- Break in containment barriers.
- Visible emissions in excess of the specification tolerances.
- Loss of negative air pressure when negative air pressure is specified (e.g., for dry abrasive blast cleaning).

- Serious injury within the containment area.
- Fire or safety emergency.
- Respiratory system failure.
- Power failure.

b) Contingency Plans and Arrangements. The Engineer will refer to the contingency plan for site specific instructions in the case of emergencies.

The Contractor shall prepare a contingency plan for emergencies including fire, accident, failure of power, failure of dust collection system, failure of supplied air system or any other event that may require modification of standard operating procedures during lead removal. The plan shall include specific procedures to ensure safe egress and proper medical attention in the event of an emergency. The Contractor shall post the telephone numbers and locations of emergency services including fire, ambulance, doctor, hospital, police, power company and telephone company on clean side of personnel decontamination area.

A two-way radio, or equal, as approved by the Engineer, capable of summoning emergency assistance shall be available at each bridge during the time the Contractor's personnel are at the bridge site under this contract. The following emergency response equipment described in the contingency plan (generic form attached) shall be available during this time as well: an appropriate portable fire extinguisher, a 55 gal (208 L) drum, a 5 gal (19 L) pail, a long handled shovel, absorbent material (one bag).

A copy of the contingency plan shall be maintained at each bridge during cleaning operations and during the time the Contractor's personnel are at the bridge site under this contract. The Contractor shall designate the emergency coordinator(s) required who shall be responsible for the activities described.

An example of a contingency plan is included at the end of this Special Provision.

Collection, Temporary Storage, Transportation and Disposal of Waste

The Contractor and the Department are considered to be co-generators of the waste.

The Contractor is responsible for all aspects of waste collection, testing and identification, handling, storage, transportation, and disposal according to these specifications and all applicable Federal, State, and Local regulations. The Contractor shall provide for Engineer review and acceptance a Waste Management Plan that addresses all aspects of waste handling, storage, and testing, and provides the names, addresses, and a contact person for the proposed licensed waste haulers and disposal facilities. The Department will not perform any functions relating to the waste other than provide EPA identification numbers, provide the Contractor with the emergency response information, the emergency response telephone number required to be provided on the manifest, and to sign the waste manifest. The Engineer will obtain the identification numbers from the state and

federal environmental protection agencies for the bridge(s) to be painted and furnish those to the Contractor.

All surface preparation/paint residues shall be collected daily and deposited in all-weather containers supplied by the Contractor as temporary storage. The storage area shall be secure to prevent unauthorized entry or tampering with the containers. Acceptable measures include storage within a fully enclosed (e.g., fenced in) and locked area, within a temporary building, or implementing other reasonable means to reduce the possibility of vandalism or exposure of the waste to the public or the environment (e.g., securing the lids or covers of waste containers and roll-off boxes). Waste shall not be stored outside of the containers. Waste shall be collected and transferred to bulk containers taking extra precautions as necessary to prevent the suspension of residues in air or contamination of surrounding surfaces. Precautions may include the transfer of the material within a tarpaulin enclosure. Transfer into roll-off boxes shall be planned to minimize the need for workers to enter the roll-off box.

No residues shall remain on surfaces overnight, either inside or outside of containment. Waste materials shall not be removed through floor drains or by throwing them over the side of the bridge. Flammable materials shall not be stored around or under any bridge structures.

The all-weather containers shall meet the requirements for the transportation of hazardous materials and as approved by the Department. Acceptable containers include covered roll-off boxes and 55-gallon drums (17H). The Contractor shall insure that no breaks and no deterioration of these containers occurs and shall maintain a written log of weekly inspections of the condition of the containers. A copy of the log shall be furnished to the Engineer upon request. The containers shall be kept closed and sealed from moisture except during the addition of waste. Each container shall be permanently identified with the date that waste was placed into the container, contract number, hazardous waste name and ID number, and other information required by the IEPA.

The Contractor shall have each waste stream sampled for each project and tested by TCLP and according to EPA and disposal company requirements. The Engineer shall be notified in advance when the samples will be collected. The samples shall be collected and shipped for testing within the first week of the project, with the results due back to the Engineer within 10 days. Testing shall be considered included in the pay item for "Containment and Disposal of Lead Paint Cleaning Residues." Copies of the test results shall be provided to the Engineer prior to shipping the waste.

Waste water generated from bridge washing, hygiene purposes, and cleaning of equipment shall be filtered on site to remove particulate and disposed of at a Publicly Owned Treatment Works (POTW) according to State regulations. The Contractor shall provide the Engineer with a letter from the POTW indicating that they will accept the waste water. If the POTW allows the filtered water to be placed into the sanitary sewer system, the Contractor shall provide a letter from the POTW indicating that based on the test results of the water, disposal in the sanitary sewer is acceptable to them. Water shall not be disposed of until the above letter(s) are provided to, and accepted by, the Engineer.

If approved abrasive additives are used that render the waste non-hazardous as determined by TCLP testing, the waste shall be classified as a non-hazardous special waste, transported by a licensed waste transporter, and disposed of at an IEPA permitted disposal facility in Illinois.

When paint is removed from the bridge without the use of abrasive additives, the paint, together with the surface preparation media (e.g. abrasive) shall be handled as a hazardous waste, regardless of the TCLP results. The waste shall be transported by a licensed hazardous waste transporter, treated by an IEPA permitted treatment facility to a non-hazardous special waste and disposed of at an IEPA permitted disposal facility in Illinois.

The treatment/disposal facilities shall be approved by the Engineer, and shall hold an IEPA permit for waste disposal and waste stream authorization for this cleaning residue. The IEPA permit and waste stream authorization must be obtained prior to beginning cleaning, except that if necessary, limited paint removal will be permitted in order to obtain samples of the waste for the disposal facilities. The waste shall be shipped to the facility within 90 days of the first accumulation of the waste in the containers. When permitted by the Engineer, waste from multiple bridges in the same contract may be transported by the Contractor to a central waste storage location(s) approved by the Engineer in order to consolidate the material for pick up, and to minimize the storage of waste containers at multiple remote sites after demobilization. Arrangements for the final waste pickup shall be made with the waste hauler by the time blast cleaning operations are completed or as required to meet the 90 day limit stated above.

The Contractor shall submit a waste accumulation inventory table to the Engineer no later than the 5th day of the month. The table shall show the number and size of waste containers filled each day in the preceding month and the amount of waste shipped that month, including the dates of shipments.

The Contractor shall prepare a manifest supplied by the IEPA for off-site treatment and disposal before transporting the hazardous waste off-site. The Contractor shall prepare a land ban notification for the waste to be furnished to the disposal facility. The Contractor shall obtain the handwritten signature of the initial transporter and date of the acceptance of the manifest. The Contractor shall send one copy of the manifest to the IEPA within two working days of transporting the waste off-site. The Contractor shall furnish the generator copy of the manifest and a copy of the land ban notification to the Engineer. The Contractor shall give the transporter the remaining copies of the manifest.

All other project waste shall be removed from the site according to Federal, State and Local regulations, with all waste removed from the site prior to final Contractor demobilization.

The Contractor shall make arrangements to have other hazardous waste, which he/she generates, such as used paint solvent, transported to the Contractor's facility at the end of each day that this waste is generated. These hazardous wastes shall be manifested using the Contractor's own generator number to a treatment or disposal facility from the Contractor's facility. The Contractor

shall not combine solvents or other wastes with cleaning residue wastes. All waste streams shall be stored in separate containers.

The Contractor is responsible for the payment of any fines and undertaking any clean up activities mandated by State or federal environmental agencies for improper waste handling, storage, transportation, or disposal.

Contractor personnel shall be trained in the proper handling of hazardous waste, and the necessary notification and clean up requirements in the event of a spill. The Contractor shall maintain a copy of the personnel training records at each bridge site.

Measurement and Payment

The soil, water, and air monitoring, containment, collection, temporary storage, transportation, testing, and disposal of all project waste, and all other work described herein will be measured and paid for at the contract lump sum price for CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES, which price shall include all labor, equipment, and material necessary to complete the work as specified.

Payment will not be authorized until all requirements have been fulfilled as described in this specification, including the preparation and submittal of all QC documentation, submittal of environmental monitoring and waste test results, and disposal of all waste.

Appendix 1 – Reference List

The Contractor shall maintain the following reference standards and regulations on site for the duration of the project:

- Illinois Environmental Protection Agency – Information Statement on the Removal of Lead-Based Paint from Exterior Surfaces, latest revision
- Illinois Environmental Protection Act
- SSPC Guide 6, Guide for Containing Debris Generated During Paint Removal Operations
- 29 CFR 1926.62, Lead in Construction
- 40 CFR Part 50, Appendix B, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere (High-Volume Method)
- 40 CFR Part 50, Appendix G, Reference Method for the Determination of Lead in Suspended Particulate Matter Collected from Ambient Air
- SSPC Guide 16, Guide to Specifying and Selecting Dust Collectors
- SSPC TU-7, Conducting Ambient Air, Soil, and Water Sampling Activities During Surface Preparation and Paint Disturbance Activities.

Removal Method	SSPC Class²	Containment Material Flexibility	Containment Material Permeability³	Containment Support Structure	Containment Material Joints⁴
Hand Tool Cleaning	3P ⁶	Rigid or Flexible	Permeable or Impermeable	Minimal	Partially Sealed
Power Tool Cleaning w/ Vacuum	3P ⁶	Rigid or Flexible	Permeable or Impermeable	Minimal	Partially Sealed
Power Tool Cleaning w/o Vacuum	2P	Rigid or Flexible	Permeable or Impermeable	Rigid or Flexible	Fully or Partially Sealed
Water Jetting Wet Ab Blast Water Cleaning ⁷	2W-3W	Rigid or Flexible	Permeable and Impermeable ⁷	Rigid, Flexible, or Minimal	Fully and Partially Sealed
Abrasive Blast Cleaning	1A	Rigid or Flexible	Impermeable	Rigid or Flexible	Fully Sealed
Vacuum Blast Cleaning	4A ⁶	Rigid or Flexible	Permeable	Minimal	Partially Sealed

Removal Method	SSPC Class²	Containment Entryway	Ventilation System Required⁵	Negative Pressure Required	Exhaust Filtration Required
Hand Tool Cleaning	3P ⁶	Overlapping or Open Seam	Natural	No	No
Power Tool Cleaning w/ Vacuum	3P ⁶	Overlapping or Open Seam	Natural	No	No
Power Tool Cleaning w/o Vacuum	2P	Overlapping or Open Seam	Natural	No	No
Water Jetting Wet Ab Blast Water Cleaning ⁷	2W-3W	Overlapping or Open Seam	Natural	No	No
Abrasive Blast Cleaning	1A	Airlock or Resealable	Mechanical	Yes	Yes
Vacuum Blast Cleaning	4A ⁶	Open Seam	Natural	No	No

Notes:

¹This table provides general design criteria only. It does not guarantee that specific controls over emissions will occur because unique site conditions must be considered in the design. Other combinations of materials may provide controls over emissions equivalent to or greater than those combinations shown above.

²The SSPC Classification is based on SSPC Guide 6. Note that for work over water, water booms or boats with skimmers must be employed, where feasible, to contain spills or releases. Debris must be removed daily at a minimum.

³Permeability addresses both air and water as appropriate. In the case of water removal methods, the containment materials must be resistant to water. Ground covers should always be impermeable, and of sufficient strength to withstand the impact and weight of the debris and the equipment used for collection and clean-up. Ground covers must also extend beyond the containment boundary to capture escaping debris.

⁴If debris escapes through the seams, then additional sealing of the seams and joints is required.

⁵When "Natural" is listed, ventilation is not required provided the emissions are controlled as specified in this Special Provision, and provided worker exposures are properly controlled. If unacceptable emissions or worker exposures to lead or other toxic metals occur, incorporate a ventilation system into the containment.

⁶Ground covers and wall tarpaulins may provide suitable controls over emissions without the need to completely enclose the work area.

⁷This method applies to water cleaning to remove surface contaminants, and water jetting (with and without abrasive) and wet abrasive blast cleaning where the goal is to remove paint. Although both permeable and impermeable containment materials are included, ground covers and the lower portions of the containment must be water impermeable with fully sealed joints, and of sufficient strength and integrity to facilitate the collection and holding of the water and debris for proper disposal. If water or debris, other than mist, escape through upper sidewalls or ceiling areas constructed of permeable materials, they shall be replaced with impermeable materials. Permeable materials for the purpose of this specification are defined as materials with openings measuring 25 mils (1 micron) or less in greatest dimension.

- A. Containment Components - The basic components that make up containment systems are defined below. The components are combined in Table 1 to establish the minimum containment system requirements for the method(s) of paint removal specified for the Contract.

1. **Rigidity of Containment Materials** - Rigid containment materials consist of solid panels of plywood, aluminum, rigid metal, plastic, fiberglass, composites, or similar materials. Flexible materials consist of screens, tarps, drapes, plastic sheeting, or similar materials. When directed by the Engineer, do not use flexible materials for horizontal surfaces directly over traffic lanes or vertical surfaces in close proximity to traffic lanes. If the Engineer allows the use of flexible materials, The Contractor shall take special precautions to completely secure the materials to prevent any interference with traffic.
2. **Permeability of Containment Materials** - The containment materials are identified as air impenetrable if they are impervious to dust or wind such as provided by rigid panels, coated solid tarps, or plastic sheeting. Air penetrable materials are those that are formed or woven to allow air flow. Water impermeable materials are those that are capable of containing and controlling water when wet methods of preparation are used. Water permeable materials allow the water to pass through. Chemical resistant materials are those resistant to chemical and solvent stripping solutions. Use fire retardant materials in all cases.
3. **Support Structure** - Rigid support structures consist of scaffolding and framing to which the containment materials are affixed to minimize movement of the containment cocoon. Flexible support structures are comprised of cables, chains, or similar systems to which the containment materials are affixed. Use fire retardant materials in all cases.
4. **Containment Joints** - Fully sealed joints require that mating surfaces between the containment materials and to the structure being prepared are completely sealed. Sealing measures include tape, caulk, Velcro, clamps, or other similar material capable of forming a continuous, impenetrable or impermeable seal. When materials are overlapped, a minimum overlap of 8 in. (200 mm) is required.
5. **Entryway** - An airlock entryway involves a minimum of one stage that is fully sealed to the containment and which is maintained under negative pressure using the ventilation system of the containment. Resealable door entryways involve the use of flexible or rigid doors capable of being repeatedly opened and resealed. Sealing methods include the use of zippers, Velcro, clamps, or similar fasteners. Overlapping door tarpaulin entryways consist of two or three overlapping door tarpaulins.
6. **Mechanical Ventilation** - The requirement for mechanical ventilation is to ensure that adequate air movement is achieved to reduce worker exposure to toxic metals to as low as feasible according to OSHA regulations (e.g., 29

CFR 1926.62), and to enhance visibility. Design the system with proper exhaust ports or plenums, adequately sized ductwork, adequately sized discharge fans and air cleaning devices (dust collectors) and properly sized and distributed make-up air points to achieve a uniform air flow inside containment for visibility. The design target for airflow shall be a minimum of 100 ft. (30.5m) per minute cross-draft or 60 ft. (18.3 m) per minute downdraft. Increase these minimum airflow requirements if necessary to address worker lead exposures. Natural ventilation does not require the use of mechanical equipment for moving dust and debris through the work area.

7. Negative Pressure - When specified, achieve a minimum of 0.03 in. (7.5 mm) water column (W.C.) relative to ambient conditions, or confirm through visual assessments for the concave appearance of the containment enclosure.
8. Exhaust Ventilation - When mechanical ventilation systems are used, provide filtration of the exhaust air, to achieve a filtration efficiency of 99.9 percent at 0.02 mils (0.5 microns).

HAZARDOUS WASTE
CONTINGENCY PLAN
FOR
LEAD BASED PAINT REMOVAL PROJECTS

Bridge No.: _____
Location: _____
USEPA Generator No.: _____
IEPA Generator No.: _____

Note:

1. A copy of this plan must be kept at the bridge while the Contractor's employees are at the site.
2. A copy of the plan must be mailed to the police and fire departments and hospital identified herein.

Primary Emergency Coordinator

Name: _____
Address: _____
City: _____
Phone: (Work) _____
(Home) _____

Alternate Emergency Coordinator

Name: _____
Address: _____
City: _____
Phone: (Work) _____
(Home) _____

Emergency Response Agencies

POLICE:

1. State Police (if bridge not in city) Phone: _____
District No. _____
Address: _____
2. County Sheriff _____ Phone: _____
County: _____
Address: _____
3. City Police _____ Phone: _____
District No. _____
Address: _____

Arrangements made with police: (Describe arrangements or refusal by police to make arrangements):

FIRE:

1. City _____ Phone: _____
Name: _____
Address: _____
2. Fire District _____ Phone: _____
Name: _____
Address: _____

3. Other _____ Phone: _____

Name: _____

Address: _____

Arrangements made with fire departments: (Describe arrangements or refusal by fire departments to make arrangements):

HOSPITAL:

Name: _____ Phone: _____

Address: _____

Arrangements made with hospital: (Describe arrangements or refusal by hospital to make arrangements):

Properties of waste and hazard to health:

Places where employees working:

Location of Bridge:

Types of injuries or illness which could result:

Appropriate response to release of waste to the soil:

Appropriate response to release of waste to surface water:

Emergency Equipment at Bridge

Emergency Equipment List	Location of Equipment	Description of Equipment	Capability of Equipment
1. Two-way radio	Truck	Communication	
2. Portable Fire Extinguisher	Truck	Extinguishes Fire	
3. Absorbent Material	Truck	Absorbs Paint or Solvent Spills	
4. Hand Shovel	Truck	Scooping Material	
5. 55 Gallon (208 L) Drum	Truck	Storing Spilled Material	
6. 5 Gallon (19 L) Pail	Truck	Storing Spilled Material	

Emergency Procedure

1. Notify personnel at the bridge of the emergency and implement emergency procedure.
2. Identify the character, source, amount and extent of released materials.
3. Assess possible hazards to health or environment.
4. Contain the released waste or extinguish fire. Contact the fire department if appropriate.
5. If human health or the environment is threatened, contact appropriate police and fire department. In addition, the Emergency Services and Disaster Agency needs to be called using their 24-hour toll free number (800-782-7860) and the National Response Center using their 24-hour toll free number (800-824-8802).
6. Notify the Engineer that an emergency has occurred.
7. Store spilled material and soil contaminated by spill, if any, in a drum or pail. Mark and label the drum or pail for disposal.
8. Write a full account of the spill or fire incident including date, time, volume, material, and response taken.
9. Replenish stock of absorbent material or other equipment used in response.

Z0007122 REMOVING AND RE-ERECTING EXISTING RAILING

Description

This work shall consist of the partial removal and re-erection of existing railing and rail posts at the locations shown on the plans and as directed by the Engineer.

Construction Requirements

The removal, temporary storage, and re-erection of existing railing and rail posts shall be performed according to Sections 630 and 632 of the Standard Specifications.

New bolts, nuts, washers and other associated hardware shall be used throughout the re-erection work where required. Rail elements and posts that are damaged during removal shall be replaced at the Contractor's expense. Existing bolts shall be removed by removing or shearing the nuts. The use of a cutting torch to remove existing bolts shall not be allowed. Partial removal of railing elements from existing portions to remain shall be done by neatly saw cutting perpendicular to the length of the rail. Carefully remove existing posts embedded in concrete. Saw-cutting the post flush with the existing concrete surface shall not be permitted.

Where railing is to be made longer than the existing railing, the lengthened portion of the railing shall be of the same kind in terms of metal section, appearance, and anchorage.

Re-erect existing rail by field welding sections together. All welds shall be ground smooth and seamless. Metal railings shall be primed and painted to match the paint color and sheen of the unaltered portions of the railing or that of adjacent railings.

Measurement and Payment

This work will be measured for payment in linear feet parallel to the top rail. At each location, the length to be included for payment will be the greater of the removed portion of existing rail or the length of the re-erected existing rail, which shall include new rail added in-kind where necessary.

This work will be paid for at the contract unit price per foot for REMOVING AND RE-ERECTING EXISTING RAILING, which price shall include all labor, equipment, and material necessary to complete the work as specified, including concrete coring, fasteners, welding, grinding, and painting.

Z0012754 STRUCTURAL REPAIR OF CONCRETE (DEPTH EQUAL TO OR LESS THAN 5 INCHES)
Z0012755 STRUCTURAL REPAIR OF CONCRETE (DEPTH GREATER THAN 5 INCHES)

Description. This work shall consist of structurally repairing concrete.

Materials. Materials shall be according to the following.

Item	Article/Section
(a) Portland Cement Concrete (Note 1)	1020
(b) R1 or R2 Concrete (Note 2)	
(c) Normal Weight Concrete (Notes 3 and 4)	
(d) Shotcrete (High Performance) (Notes 5 and 6)	
(e) Reinforcement Bars	1006.10
(f) Anchor Bolts	1006.09
(g) Water	1002
(h) Curing Compound	1022.01
(i) Cotton Mats	1022.02
(j) Protective Coat	1023.01
(k) Epoxy (Note 7)	1025
(l) Mechanical Bar Splicers	508.06(c)

Note 1. The concrete shall be Class SI, except the cement factor shall be a minimum 6.65 cwt/cu yd (395 kg/cu m), the coarse aggregate shall be a CA 16, and the strength shall be a minimum 4000 psi (27,500 kPa) compressive or 675 psi (4650 kPa) flexural at 14 days. A high range water-reducing admixture shall be used to obtain a 5-7 in. (125-175 mm) slump, but a cement factor reduction according to Article 1020.05(b)(8) is prohibited. A self-consolidating concrete mixture is also acceptable per Article 1020.04, except the mix design requirements of this note regarding the cement factor, coarse aggregate, strength, and cement factor reduction shall apply.

Note 2. The R1 or R2 concrete shall be from the Illinois Department of Transportation's approved list of Packaged, Dry, Rapid Hardening, Cementitious Materials for Concrete Repairs. The R1 or R2 concrete shall comply with the air content and strength requirements for Class SI concrete as indicated in Note 1. Mixing shall be per the manufacturer's recommendations, except the water/cement ratio shall not exceed the value specified for Class SI concrete as indicated in Note 1. A high range water-reducing admixture shall be used to obtain a 5-7 in. (125-175 mm) slump, and a retarder may be required to allow time to perform the required field tests. The admixtures shall be per the manufacturer's recommendation, and the Illinois Department of Transportation's approved list of Concrete Admixtures shall not apply.

- Note 3. The “high slump” packaged concrete mixture shall be from the Illinois Department of Transportation’s approved list of Packaged, Dry, Formed, Concrete Repair Mixtures. The materials and preparation of aggregate shall be according to ASTM C 387. The cement factor shall be 6.65 cwt/cu yd (395 kg/cu m) minimum to 7.05 cwt/cu yd (418 kg/cu m) maximum. Cement replacement with fly ash or ground granulated blast-furnace slag shall be according to Section 1020. The “high slump” packaged concrete mixture shall have a water soluble chloride ion content of less than 0.40 lb/cu yd (0.24 kg/cu m). The test shall be performed according to ASTM C 1218, and the “high slump” packaged concrete mixture shall have an age of 28 to 42 days at the time of test. The ASTM C 1218 test shall be performed by an independent lab a minimum of once every two years, and the test results shall be provided to the City of Champaign. The coarse aggregate shall be a maximum size of 1/2 in. (12.5 mm). The packaged concrete mixture shall comply with the air content and strength requirements for Class SI concrete as indicated in Note 1. Mixing shall be per the manufacturer’s recommendations, except the water/cement ratio shall not exceed the value specified for Class SI concrete as indicated in Note 1. A high range water-reducing admixture shall be used to obtain a 5-7 in. (125-175 mm) slump. The admixture shall be per the manufacturer’s recommendation, and the Illinois Department of Transportation’s approved list of Concrete Admixtures shall not apply. A maximum slump of 10 in. (250 mm) may be permitted if no segregation is observed by the Engineer in a laboratory or field evaluation.
- Note 4 The “self-consolidating concrete” packaged concrete mixture shall be from the Illinois Department of Transportation’s approved list of Packaged, Dry, Formed, Concrete Repair Mixtures. The materials and preparation of aggregate shall be according to ASTM C 387. The cement factor shall be 6.65 cwt/cu yd (395 kg/cu m) minimum to 7.05 cwt/cu yd (418 kg/cu m) maximum. Cement replacement with fly ash or ground granulated blast-furnace slag shall be according to Section 1020. The “self-consolidating concrete” packaged concrete mixture shall have a water soluble chloride ion content of less than 0.40 lb/cu yd (0.24 kg/cu m). The test shall be performed according to ASTM C 1218, and the “self-consolidating concrete” packaged concrete mixture shall have an age of 28 to 42 days at the time of test. The ASTM C 1218 test shall be performed by an independent lab a minimum of once every two years, and the test results shall be provided to the City of Champaign. The concrete mixture should be uniformly graded, and the coarse aggregate shall be a maximum size of 1/2 in. (12.5 mm). The fine aggregate proportion shall be a maximum 50 percent by weight (mass) of the total aggregate used. The packaged concrete mixture shall comply with the air content and strength requirements for Class SI concrete as indicated in Note 1. Mixing shall be per the manufacturer’s recommendations, except the water/cement ratio shall not exceed the value specified for Class SI concrete as indicated in Note 1. The admixtures used to produce self-consolidating concrete shall be per the manufacturer’s recommendation, and the Illinois Department of Transportation’s approved list of

Concrete Admixtures shall not apply. The packaged concrete mixture shall meet the self-consolidating requirements of Article 1020.04.

- Note 5. Packaged shotcrete that includes aggregate shall be from the Illinois Department of Transportation's approved list of Packaged High Performance Shotcrete, and independent laboratory test results showing the product meets Illinois Department of Transportation specifications will be required. The product shall be a packaged, pre-blended, and dry combination of materials, for the wet-mix shotcrete method according to ASTM C 1480. A non-chloride accelerator may be used according to the shotcrete manufacturer's recommendations. The shotcrete shall be Type FA or CA, Grade FR, and Class I. The fibers shall be Type III synthetic according to ASTM C 1116.

The packaged shotcrete shall have a water soluble chloride ion content of less than 0.40 lb/cu yd (0.24 kg/cu m). The test shall be performed according to ASTM C 1218, and the hardened shotcrete shall have an age of 28 to 42 days at the time of test. The ASTM C 1218 test shall be performed by an independent lab a minimum of once every two years, and the test results shall be provided to the City of Champaign.

Each individual aggregate used in the packaged shotcrete shall have either a maximum ASTM C 1260 expansion of 0.16 percent or a maximum ASTM C 1293 expansion of 0.040 percent. However, the ASTM C 1260 value may be increased to 0.27 percent for each individual aggregate if the cement total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) does not exceed 0.60 percent. As an alternative to these requirements, ASTM C 1567 testing which shows the packaged shotcrete has a maximum expansion of 0.16 percent may be submitted. The ASTM C 1260, C 1293, or C 1567 test shall be performed a minimum of once every two years.

The 7 and 28 day compressive strength requirements in ASTM C 1480 shall not apply. Instead the shotcrete shall obtain a minimum compressive strength of 4000 psi (27,500 kPa) at 14 days.

The packaged shotcrete shall be limited to the following proportions:

The Portland cement and finely divided minerals shall be 6.05 cwt/cu yd (360 kg/cu m) to 8.50 cwt/cu yd (505 kg/cu m) for Type FA and 6.05 cwt/cu yd (360 kg/cu. m) to 7.50 cwt/cu yd (445 kg/cu m) for Type CA. The Portland cement shall not be below 4.70 cwt/cu yd (279 kg/cu m) for Type FA or CA.

The finely divided mineral(s) shall constitute a maximum of 35 percent of the total cement plus finely divided mineral(s).

Class F fly ash is optional and the maximum shall be 20 percent by weight (mass) of cement.

Class C fly ash is optional and the maximum shall be 25 percent by weight (mass) of cement.

Ground granulated blast-furnace slag is optional and the maximum shall be 30 percent by weight (mass) of cement.

Microsilica is required and shall be a minimum of 5 percent by weight (mass) of cement, and a maximum of 10 percent. As an alternative to microsilica, high-reactivity metakaolin may be used at a minimum of 5 percent by weight (mass) of cement, and a maximum of 10 percent.

Fly ash shall not be used in combination with ground granulated blast-furnace slag. Class F fly ash shall not be used in combination with Class C fly ash. Microsilica shall not be used in combination with high-reactivity metakaolin. A finely divided mineral shall not be used in combination with a blended hydraulic cement, except for microsilica or high-reactivity metakaolin.

The water/cement ratio as defined in Article 1020.06 shall be a maximum of 0.42.

The air content as shot shall be 4.0 – 8.0 percent.

Note 6 Packaged shotcrete that does not include pre-blended aggregate shall be from the Illinois Department of Transportation's approved list of Packaged High Performance Shotcrete, and independent laboratory test results showing the product meets Illinois Department of Transportation specifications will be required. The shotcrete shall be according to Note 5, except the added aggregate shall be according to Articles 1003.02 and 1004.02 in addition to each individual aggregate meeting the maximum expansion requirements of Note 5. The aggregate gradation shall be according to the manufacturer. The shotcrete shall be batched and mixed with added aggregate according to the manufacturer.

Note 7. In addition ASTM C 881, Type IV, Grade 2 or 3, Class A, B, or C may be used.

Equipment. Equipment shall be according to Article 503.03 and the following.

Chipping Hammer – The chipping hammer for removing concrete shall be a light-duty pneumatic or electric tool with a 15 lb. (7 kg) maximum class or less.

Blast Cleaning Equipment – Blast cleaning equipment for concrete surface preparation shall be the abrasive type, and the equipment shall have oil traps.

Hydrodemolition Equipment – Hydrodemolition equipment for removing concrete shall be calibrated, and shall use water according to Section 1002.

High Performance Shotcrete Equipment – The batching, mixing, pumping, hose, nozzle, and auxiliary equipment shall be for the wet-mix shotcrete method, and shall meet the requirements of ACI 506R.

Construction Requirements

General. The repair methods shall be either formed concrete repair or shotcrete. The repair method shall be selected by the Contractor with the following rules.

- (a) Rule 1. For formed concrete repair, a subsequent patch to repair the placement point after initial concrete placement will not be allowed. As an example, this may occur in a vertical location located at the top of the repair.
- (b) Rule 2. Formed concrete repair shall not be used for overhead applications.
- (c) Rule 3. If formed concrete repair is used for locations that have reinforcement with less than 0.75 in. (19 mm) of concrete cover, the concrete mixture shall contain fly ash or ground granulated blast-furnace slag at the maximum cement replacement allowed.
- (d) Rule 4. Shotcrete shall not be used for any repair greater than 6 in. (150 mm) in depth, except in horizontal applications, where the shotcrete may be placed from above in one lift.
- (e) Rule 5. Shotcrete shall not be used for column repairs greater than 4 in. (100 mm) in depth, unless the shotcrete mixture contains 3/8 in. (9.5 mm) aggregate.

Temporary Shoring or Cribbing. When a temporary shoring or cribbing support system is required, the Contractor shall provide details and computations, prepared and sealed by an Illinois licensed Structural Engineer, to the City of Champaign for review and approval. Whenever possible the support system shall be installed prior to starting the associated concrete removal. If no system is specified, but during the course of removal the need for temporary shoring or cribbing becomes apparent or is directed by the Engineer due to a structural concern, the Contractor shall not proceed with any further removal work until an appropriate and approved support system is installed.

Concrete Removal. The Contractor shall provide ladders or other appropriate equipment for the Engineer to mark the removal areas. Repair configurations will be kept simple, and squared corners will be preferred. The repair perimeter shall be sawed a depth of 1/2 in. (13 mm) or less, as required to avoid cutting the reinforcement. Any cut reinforcement shall be repaired or replaced at the expense of the Contractor. If the concrete is broken or removed beyond the limits of the initial saw cut, the new repair perimeter shall be recut. The areas to be repaired shall have all loose, unsound concrete removed completely by the use of chipping hammers, hydrodemolition equipment, or other methods approved by the Engineer. The concrete removal shall extend along the reinforcement bar until the reinforcement is free of bond inhibiting corrosion. Reinforcement bar with 50 percent or more exposed shall be undercut to a depth of 3/4 in. (19 mm) or the diameter of the reinforcement bar, whichever is greater.

If sound concrete is encountered before existing reinforcement bars are exposed, further removal of concrete shall not be performed unless the minimum repair depth is not met.

The repair depth shall be a minimum of 1 in. (25 mm). The substrate profile shall be $\pm 1/16$ in. (± 1.5 mm). The perimeter of the repair area shall have a vertical face.

If a repair is located at the ground line, any excavation required below the ground line to complete the repair shall be included in this work.

The Contractor shall have a maximum of 14 calendar days to complete each repair location with concrete or shotcrete, once concrete removal has started for the repair.

The Engineer shall be notified of concrete removal that exceeds 6 in. (150 mm) in depth, one fourth the cross section of a structural member, more than half the vertical column reinforcement is exposed in a cross section, more than 6 consecutive reinforcement bars are exposed in any direction, within 1.5 in. (38 mm) of a bearing area, or other structural concern. Excessive deterioration or removal may require further evaluation of the structure or installation of temporary shoring and cribbing support system.

Surface Preparation. Prior to placing the concrete or shotcrete, the Contractor shall prepare the repair area and exposed reinforcement by blast cleaning. The blast cleaning shall provide a surface that is free of oil, dirt, and loose material.

If a succeeding layer of shotcrete is to be applied, the initial shotcrete surface and remaining exposed reinforcement shall be free of curing compound, oil, dirt, loose material, rebound (i.e. shotcrete material leaner than the original mixture which ricochets off the receiving surface), and overspray. Preparation may be by lightly brushing or blast cleaning if the previous shotcrete surface is less than 36 hours old. If more than 36 hours old, the surface shall be prepared by blast cleaning.

The repair area and perimeter vertical face shall have a rough surface. Care shall be taken to ensure the sawcut face is roughened by blast cleaning. Just prior to concrete or shotcrete placement, saturate the repair area with water to a saturated surface-dry condition. Any standing water shall be removed.

Concrete or shotcrete placement shall be done within 3 calendar days of the surface preparation or the repair area shall be prepared again.

Reinforcement. Exposed reinforcement bars shall be cleaned of concrete and corrosion by blast cleaning. After cleaning, all exposed reinforcement shall be carefully evaluated to determine if replacement or additional reinforcement bars are required.

Reinforcing bars that have been cut or have lost 25 percent or more of their original cross sectional area shall be supplemented by new in kind reinforcement bars. New bars shall be lapped a minimum of 32 bar diameters to existing bars. A mechanical bar splicer shall be used when it is not feasible to provide the minimum bar lap. No welding of bars shall be performed.

Intersecting reinforcement bars shall be tightly secured to each other using 0.006 in. (1.6 mm) or heavier gauge tie wire, and shall be adequately supported to minimize movement during concrete placement or application of shotcrete.

For reinforcement bar locations with less than 0.75 in. (19 mm) of cover, protective coat shall be applied to the completed repair. The application of the protective coat shall be according to Article 503.19, 2nd paragraph, except blast cleaning shall be performed to remove curing compound.

The Contractor shall anchor the new concrete to the existing concrete with 3/4 in. (19 mm) diameter hook bolts for all repair areas where the depth of concrete removal is greater than 8 in. (205 mm) and there is no existing reinforcement extending into the repair area. The hook bolts shall be spaced at 15 in. (380 mm) maximum centers both vertically and horizontally, and shall be a minimum of 12 in. (305 mm) away from the perimeter of the repair. The hook bolts shall be installed according to Section 584.

Repair Methods. All repair areas shall be inspected and approved by the Engineer prior to placement of the concrete or application of the shotcrete.

- (a) Formed Concrete Repair. Falsework shall be according to Article 503.05. Forms shall be according to Article 503.06. Formwork shall provide a smooth and uniform concrete finish, and shall approximately match the existing concrete structure. Formwork shall be mortar tight and closely fitted where they adjoin the existing concrete surface to prevent leakage. Air vents may be provided to reduce voids and improve surface appearance. The Contractor may use exterior mechanical vibration, as approved by the Engineer, to release air pockets that may be entrapped.

The concrete for formed concrete repair shall be a Class SI Concrete, or a packaged R1 or R2 Concrete with coarse aggregate added, or a packaged Normal Weight Concrete at the Contractor's option. The concrete shall be placed and consolidated according to Article 503.07. The concrete shall not be placed when frost is present on the surface of the repair area, or the surface temperature of the repair area is less than 40 °F (4 °C). All repaired members shall be restored as close as practicable to their original dimensions.

Curing shall be done according to Article 1020.13.

If temperatures below 45°F (7°C) are forecast during the curing period, protection methods shall be used. Protection Method I according to Article 1020.13(d)(1), or Protection Method II according to Article 1020.13(d)(2) shall be used during the curing period.

The surfaces of the completed repair shall be finished according to Article 503.15.

- (b) Shotcrete. Shotcrete shall be tested by the Engineer for air content according to Illinois Modified AASHTO T 152. The sample shall be obtained from the discharge end of the nozzle by shooting a pile large enough to scoop a representative amount for filling the air meter measuring bowl. Shotcrete shall not be shot directly into the measuring bowl for testing.

For compressive strength of shotcrete, a 18 x 18 x 3.5 in. (457 x 457 x 89 mm) test panel shall be shot by the Contractor for testing by the Engineer. A steel form test panel shall have a minimum thickness of 3/16 in. (5 mm) for the bottom and sides. A wood form test panel shall have a minimum 3/4 in. (19 mm) thick bottom, and a minimum 1.5 in. (38 mm) thickness for the sides. The test panel shall be cured according to Article 1020.13 (a) (3) or (5) while stored at the jobsite and during delivery to the laboratory. After delivery to the laboratory for testing, curing and testing shall be according to ASTM C 1140.

The method of alignment control (i.e. ground wires, guide strips, depth gages, depth probes, and formwork) to ensure the specified shotcrete thickness and reinforcing bar cover is obtained shall be according to ACI 506R. Ground wires shall be removed after completion of cutting operations. Guide strips and formwork shall be of dimensions and a configuration that do not prevent proper application of shotcrete. Metal depth gauges shall be cut 1/4 in. (6 mm) below the finished surface. All repaired members shall be restored as close as practicable to their original dimensions.

For air temperature limits when applying shotcrete in cold weather, the first paragraph of Article 1020.14(b) shall apply. For hot weather, shotcrete shall not be applied when the air temperature is greater than 90°F (32°C). The applied shotcrete shall have a minimum temperature of 50°F (10°C) and a maximum temperature of 90°F (32°C). The shotcrete shall not be applied during periods of rain unless protective covers or enclosures are installed. The shotcrete shall not be applied when frost is present on the surface of the repair area, or the surface temperature of the repair area is less than 40°F (4°C). If necessary, lighting shall be provided to provide a clear view of the shooting area.

The shotcrete shall be applied according to ACI 506R, and shall be done in a manner that does not result in cold joints, laminations, sandy areas, voids, sags, or separations. In addition, the shotcrete shall be applied in a manner that results in maximum densification of the shotcrete. Shotcrete which is identified as being unacceptable while still plastic shall be removed and re-applied.

The nozzle shall normally be at a distance of 2 to 5 ft. (0.6 to 1.5 m) from the receiving surface, and shall be oriented at right angles to the receiving surface. Exceptions to this requirement will be permitted to fill corners, encase large diameter reinforcing bars, or as approved by the Engineer. For any exception, the nozzle shall never be oriented more than 45 degrees from the surface. Care shall be taken to keep the front face of the reinforcement bar clean during shooting operations. Shotcrete shall be built up from behind the reinforcement bar. Accumulations of rebound and overspray shall be continuously removed prior to application of new shotcrete. Rebound material shall not be incorporated in the work.

Whenever possible, shotcrete shall be applied to the full thickness in a single layer. The maximum thickness shall be according to Rules 4 and 5 under Construction Requirements,

General. When two or more layers are required, the minimum number shall be used and shall be done in a manner without sagging or separation. A flash coat (i.e. a thin layer of up to 1/4 in. (6 mm) applied shotcrete) may be used as the final lift for overhead applications.

Prior to application of a succeeding layer of shotcrete, the initial layer of shotcrete shall be prepared according to the surface preparation and reinforcement bar cleaning requirements. Upon completion of the surface preparation and reinforcement bar treatment, water shall be applied according to the surface preparation requirements unless the surface is moist. The second layer of shotcrete shall then be applied within 30 minutes.

Shotcrete shall be cut back to line and grade using trowels, cutting rods, screeds or other suitable devices. The shotcrete shall be allowed to stiffen sufficiently before cutting. Cutting shall not cause cracks or delaminations in the shotcrete. For depressions, cut material may be used for small areas. Rebound material shall not be incorporated in the work. For the final finish, a wood float shall be used to approximately match the existing concrete texture. A manufacturer approved finishing aid may be used. Water shall not be used as a finishing aid. All repaired members shall be restored as close as practicable to their original dimensions.

Contractor operations for curing shall be continuous with shotcrete placement and finishing operations. Curing shall be accomplished using wetted cotton mats, membrane curing, or a combination of both. Cotton mats shall be applied according to Article 1020.13(a)(5) except the exposed layer of shotcrete shall be covered within 10 minutes after finishing, and wet curing shall begin immediately. Curing compound shall be applied according to Article 1020.13(a)(4), except the curing compound shall be applied as soon as the shotcrete has hardened sufficiently to prevent marring the surface, and each of the two separate applications shall be applied in opposite directions to ensure coverage. The curing compound shall be according to Article 1022.01. Note 5 of the Index Table in Article 1020.13 shall apply to the membrane curing method.

When a shotcrete layer is to be covered by a succeeding shotcrete layer within 36 hours, the repair area shall be protected with intermittent hand fogging, or wet curing with either burlap or cotton mats shall begin within 10 minutes. Intermittent hand fogging may be used only for the first hour. Thereafter, wet curing with burlap or cotton mats shall be used until the succeeding shotcrete layer is applied. Intermittent hand fogging may be extended to the first hour and a half if the succeeding shotcrete layer is applied by the end of this time.

The curing period shall be for 7 days, except when there is a succeeding layer of shotcrete. In this instance, the initial shotcrete layer shall be cured until the surface preparation and reinforcement bar treatment is started.

If temperatures below 45°F (7°C) are forecast during the curing period, protection methods shall be used. Protection Method I according to Article 1020.13(d)(1), or Protection Method II according to Article 1020.13(d)(2) shall be used during the curing period

Inspection of Completed Work. The Contractor shall provide ladders or other appropriate equipment for the Engineer to inspect the repaired areas. After curing but no sooner than 28 days after placement of concrete or shooting of shotcrete, the repair shall be examined for conformance with original dimensions, cracks, voids, and delaminations. Sounding for delaminations will be done with a hammer or by other methods determined by the Engineer.

The acceptable tolerance for conformance of a repaired area shall be within 1/4 in. (6 mm) of the original dimensions. A repaired area not in dimensional conformance or with delaminations shall be removed and replaced.

A repaired area with cracks or voids shall be considered as nonconforming. Exceeding one or more of the following crack and void criteria shall be cause for removal and replacement of a repaired area.

1. The presence of a single surface crack greater than 0.01 in. (0.25 mm) in width and greater than 12 in. (300 mm) in length.
2. The presence of two or more surface cracks greater than 0.01 in. (0.25 mm) in width that total greater than 24 in. (600 mm) in length.
3. The presence of map cracking in one or more regions totaling 15 percent or more of the gross surface area of the repair.
4. The presence of two or more surface voids with least dimension 3/4 in. (19 mm) each.

A repaired area with cracks or voids that do not exceed any of the above criteria may remain in place, as determined by the Engineer.

If a nonconforming repair is allowed to remain in place, cracks greater than 0.007 in. (0.2 mm) in width shall be repaired with epoxy according to Section 590. For cracks less than or equal to 0.007 in. (0.2 mm) in width, the epoxy may be applied to the surface of the crack. Voids shall be repaired according to Article 503.15.

Publications and Personnel Requirements. The Contractor shall provide a current copy of ACI 506R to the Engineer a minimum of one week prior to start of construction.

The shotcrete personnel who perform the work shall have current American Concrete Institute (ACI) nozzlemen certification for vertical wet and overhead wet applications, except one individual may be in training. This individual shall be adequately supervised by a certified ACI nozzlemen as determined by the Engineer. A copy of the nozzlemen certificate(s) shall be given to the Engineer.

Measurement and Payment

This work will be measured and paid for at the contract unit price per square foot for STRUCTURAL REPAIR OF CONCRETE (DEPTH EQUAL TO OR LESS THAN 5 INCHES) or STRUCTURAL REPAIR OF CONCRETE (DEPTH GREATER THAN 5 INCHES), which prices shall include all labor, equipment, and material necessary to complete the work as specified. For a repair at a corner, both sides will be measured.

Z0036500 PAINTING

Description

This work shall consist of the preparation of all designated concrete surfaces by the method specified. This work also includes the painting of those designated concrete surfaces with the paint system specified. The Contractor shall furnish all materials, equipment, labor, and other essentials necessary to accomplish this work and all other work described herein and as directed by the Engineer.

Materials

All materials to be used shall be produced by the same manufacturer.

System Type: 1) Acrylic by Texture Coatings of America 2) Sherwin Williams or approved equal.

Surface Preparation: New - SSPC-SP 13/NACE 6 to achieve a surface profile of ICRI CSP 2 or 3. Previously painted - Clean, dry, and dull.

Primer for New or Bare Concrete: 1) Tex-Cote XL-70 "W" Primer, 250 to 350 square feet per gallon 2) Sherwin Williams Loxon Concrete & Masonry Primer DFT 2.0 to 3.0

Finish Coat: 1) Tex-Cote: Tex-Cote XL 70"W" Bridge Cote (Sand) DFT 15.0 to 17.0 mils. 2) Sherwin Williams DOT Acrylic Texture Coating B42-800 Series (medium texture finish 50 to 110 sq. ft per gallon) or Ultracrete (medium texture finish, 50 to 80 sq. ft. per gallon)

Anti-Graffiti Coat: 1) Text-Cote Graffiti Gard S (clear, non-sacrificial, one component) 75 to 125 square feet per gallon 2) Sherwin Williams Ant-Graffiti Coating 1K Siloxane (clear non-sacrificial, one component) DFT 6.0 to 9.0 mils

Finish Color: "Whisper Grey T-127" as shown on color card by Texture Coatings of America or equivalent to be approved by the Engineer. Provide sample to be included with submittal.

Submittals

Contractor shall submit the name of the paint manufacturer and products to be used. Submit three 8-1/2 inch by 11 inch samples of the scheduled color for approval.

Manufacturer's Recommendations

Unless otherwise specified herein, the coating manufacturer's printed recommendations and instructions for thinning, mixing, handling, applying, and protecting its coating materials, for preparation of surfaces for coating, and for all other procedures relative to coating shall be strictly observed.

Site Preparation

Storage and Mixing: Coating materials shall be protected from exposure to hot or cold weather, and shall be thoroughly stirred, strained, and kept at a uniform consistency during application. Coatings of different manufacturers shall not be mixed together. Examine areas and conditions under which coating systems are to be applied. Notify Engineer of areas or conditions not acceptable. Do not begin surface preparation or application until unacceptable areas or conditions have been corrected. Protect surrounding areas and surfaces not scheduled to be coated from damage during surface preparation and application of coatings.

Immediately remove coatings that fall on surrounding areas and surfaces not scheduled to be coated.

Surface Preparation

Repair of all areas as specified for STRUCTURAL REPAIR OF CONCRETE (DEPTH GREATER THAN 5 INCHES) and STRUCTURAL REPAIR OF CONCRETE (DEPTH EQUAL TO OR LESS THAN 5 INCHES) shall be complete. All cementitious repair materials shall have been cured a minimum of 28 days after installation. All surfaces to receive protective coatings shall be cleaned as specified herein prior to application of said coatings. The Contractor shall examine all surfaces to be coated, and shall correct all surface defects before application of any coating material. Prepare concrete surfaces in accordance with manufacturer's instructions, SSPC-SP 13/NACE 6, and ICRI 310.2. Allow concrete including surface repair materials to cure for a minimum of 28 days. Test concrete for moisture in accordance with ASTM D 4263 and, if necessary according to ASTM F 1869. Verify that the pH of the cleaned concrete surfaces to be coated is within the range of 8 to 11. Application of coating materials outside this range will not be permitted without written approval from the Engineer.

Level concrete protrusions and mortar spatter. Fill hairline cracks less than 1/64 inch in accordance with manufacturer's instructions. Prepare cracks wider than 1/64 inch, moving cracks, and gaps in accordance with manufacturer's instructions. Ensure surfaces are clean, dry, and free of oil, grease, chalk, form release agents, and other contaminants.

All hardware, lighting fixtures, and other surfaces not to be painted shall be removed, masked or otherwise protected. Drop cloths shall be provided to prevent coating materials from falling on or marring adjacent surfaces. Care shall be exercised not to damage adjacent work during blast cleaning operations. Spray painting shall be conducted under carefully controlled conditions. The Contractor shall be fully responsible for and shall promptly repair any and all damage to adjacent work or adjoining property occurring from blast cleaning or coating operations.

Application of Coatings

Cleaned surfaces and all coats shall be inspected prior to each succeeding coat. The Contractor shall schedule such inspection with the Engineer in advance. Coatings shall be applied in accordance with the manufacturer's instructions and recommendations, and this Section, whichever has the most stringent requirements.

Finish coats, including touch-up and damage repair coats shall be applied in a manner which will present a uniform texture and color matched appearance. Apply coatings in accordance with manufacturer's instructions. Mix and thin coatings, including multi-component materials, in accordance with manufacturer's instructions. Keep containers closed when not in use to avoid contamination. Do not use mixed coatings beyond pot life limits.

Use application equipment, tools, pressure settings, and techniques in accordance with manufacturer's instructions. Uniformly apply coatings at spreading rate required to achieve specified DFT or coverage rates. Apply coatings to be free of film characteristics or defects that would adversely affect performance or appearance of coating systems. Roll or backroll the prime coat applied to concrete substrate to work the material into the substrate.

Coatings shall not be applied under the following conditions:

1. Temperature exceeding the manufacturer's recommended maximum and minimum allowable.
2. Under direct sunlight. Shade area to be painted as required.
3. Dust or smoke laden atmosphere.
4. Damp or humid weather.
5. When the substrate or air temperature is less than 5 degrees F above dewpoint.

Repairs

Materials and Surfaces Not Scheduled to be Coated: Repair or replace damaged materials and surfaces not scheduled to be coated.

Damaged Coatings: Touch-up or repair damaged coatings. Touch-up of minor damage shall be acceptable where result is not visibly different from adjacent surfaces. Recoat entire surface where touch-up result is visibly different, either in sheen, texture, or color.

Coating Defects: Repair in accordance with manufacturer's instructions coatings that exhibit film characteristics or defects that would adversely affect performance or appearance of coating systems.

Field Quality Control

Required Inspections and Documentation:

1. Verify coatings and other materials are as specified.
2. Verify surface preparation and application are as specified.
3. Verify DFT of each coat and total DFT of each coating system are as specified using wet film and dry film gauges.
4. Coating Defects: Check coatings for film characteristics or defects that would adversely affect performance or appearance of coating systems.
5. Report: Submit written reports describing inspections made and actions taken to correct nonconforming work. Report nonconforming work not corrected. Submit copies of report to Engineer and Contractor.

Manufacturer's Field Services: Manufacturer's representative shall provide technical assistance and guidance for surface preparation and application of coating systems.

Cleaning and Protection

Remove temporary coverings and protection of surrounding areas and surfaces. Protect surfaces of coating systems from damage during construction.

One-year Inspection

Owner will set date for one-year inspection of coating systems. Inspection shall be attended by Owner, Contractor, Engineer, and manufacturer's representative.

Repair deficiencies in coating systems as determined by Engineer in accordance with manufacturer's instructions.

Measurement and Payment

This work will be measured and paid for at the contract lump sum price for PAINTING, which price shall include all labor, equipment, and material necessary to complete the work as specified.

Payment will not be authorized until all requirements for surface preparation and painting have been fulfilled as described in this specification, including the preparation and submittal of all QC documentation. Payment will also not be authorized for non-conforming work until the discrepancy is resolved in writing.

Z0042300 PORTLAND CEMENT CONCRETE SIDEWALK CURB

Description

This work shall consist of constructing reinforced concrete sidewalk curb in accordance with Section 606 of the Standard Specifications, the details in the plans, and the following additions or exceptions.

Construction Requirements

The Portland cement concrete sidewalk curb shall be constructed in accordance with the details in the plans. The sidewalk curb may be poured monolithically with the sidewalk but will be measured and paid for separately.

The epoxy coated reinforcement bars shall be in accordance with Article 1006.10 of the Standard Specifications and shall be included in the cost of the sidewalk curb.

Sidewalk curb shall be integrally colored Portland cement concrete with color additive 288 Buff-Rosemary, manufactured by S.G.S. Solomon Colors, Springfield, IL, (800) 624-0261, or (217) 522-3112; Install the color additive at a rate of one 25 lb. bag per four cubic yards of concrete per the manufacturer's recommendations.

The Contractor shall seal the integrally colored sidewalk curb with Cementone Clear Sealer by L.M. Scofield, (800) 800-9900. Install Concrete Seal after Sidewalk Jointing work is complete. Concrete Seal shall be installed per manufacturer's directions. Concrete sealer shall be installed on all PCC Sidewalk Curb with color additive.

Measurement and Payment

This work will be measured along the face of the curb and will be paid for at the contract unit price per foot for PORTLAND CEMENT CONCRETE SIDEWALK CURB, which price shall include all labor, equipment, and material necessary to complete the work as specified, including all excavation, backfilling, and reinforcement bars.

Z0048665 RAILROAD PROTECTIVE LIABILITY INSURANCE

Description

This work shall consist of all necessary coordination with the Illinois Central Railroad Company and its Parents for working within the Railroad's right of way including acquiring the services of a railroad flagger when the Contractor's operations encroach on the railroad right of way as described in Article 107.12 of the Standard Specifications. The proposed work is in the vicinity of 24 East Green Street, Champaign, Illinois 61820. DOT# 289078V, Railroad Milepost 128.31 on the Champaign Subdivision.

The Contractor will be responsible for obtaining the necessary applications and agreements for Right of Entry (ROE) onto railroad right of way. The Contractor shall comply with the Contractor's "Right of Entry License Agreement" and all exhibits and attachments thereto. The Contractor shall comply with any additional insurance requirements required by the Railroad beyond the requirements of BDE Special Provision "Railroad Protective Liability Insurance (5 and 10)". The Contractor shall provide written documentation of all executed agreements to the Engineer prior to starting any work.

The Contractor shall notify the Engineer in advance of any work on the railroad right of way and receive approval from the Engineer prior to requesting the railroad flagger's services. The Contractor shall be responsible for contacting the Railroad for the services of the flagger and for determining the minimum notification time that is required. The railroad representative's contact information is as follows:

Illinois Central Railroad Company and its Parents
Mr. Paul Chojenski
17641 South Ashland Avenue
Homewood, IL 60430
(708) 332-3557
paul.chojenski@cn.ca

Measurement and Payment

This work will be measured and paid for at the contract lump sum price for RAILROAD PROTECTIVE LIABILITY INSURANCE, which price shall include all labor, equipment, and material necessary to complete the work as specified, including coordinating with the Railroad, completing and securing the “Contractor’s Right of Entry Agreement”, and any additional insurance requirements of the Railroad. No additional compensation will be allowed. Railroad flaggers will be paid for separately as specified herein.

STORM SEWERS, WATER MAIN QUALITY PIPE

Description

This item is intended to satisfy the EPA requirements for horizontal and vertical separation of sewer and water mains outlined in Section 41 of the “Standard Specifications for Water and Sewer Construction in Illinois”. This work shall consist of constructing storm sewers of the required inside diameter with the necessary fittings or joints in accordance with Section 550 of the Standard Specifications and the following additions or exceptions.

Materials

The materials allowed for the water main quality storm sewer pipe shall be a reinforced concrete pressure pipe or a ductile iron pipe of the size and type indicated on the plans. The materials shall be in accordance with Articles 40-2.01A, 40-2.01B, 40-2.02 and 40-2.05A of the “Standard Specifications for Water and Sewer Construction in Illinois”. Joints between different pipe material types shall be water tight and made with concrete collars as detailed on the plans and as approved by the Engineer. The water main quality pipe joints shall be of the type approved by the Illinois Environmental Protection Agency for storm sewer lines crossing above water mains.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot for STORM SEWERS, WATER MAIN QUALITY PIPE of the type and diameter specified, which price shall include all labor, equipment, and material necessary to complete the work as specified, except for the concrete collars. The concrete collars will be paid for separately. The pipe types shown on the plans refer to the fill heights over the pipe as indicated in Article 550.03 of the Standard Specifications.

TRANSIT RELATED SPECIFICATIONS

**X6061610 COMBINATION CONCRETE CURB AND GUTTER, TYPE B
(MODIFIED)**

X6061700 COMBINATION CONCRETE CURB AND GUTTER, TYPE B (SPECIAL)

Description

This work shall consist of constructing combination concrete curb and gutter adjacent to proposed transit station platforms or sidewalks in accordance with the applicable portions of Section 606 of the Standard Specifications, except as herein modified and as detailed in the plans.

Construction Requirements

Dimensions of Combination Concrete Curb and Gutter, Type B (Modified) and Combination Concrete Curb and Gutter, Type B (Special) shall be as shown on the plans.

Where Combination Concrete Curb and Gutter, Type B (Modified) and Combination Concrete Curb and Gutter, Type B (Special) are constructed adjacent to concrete pavement, tie bars shall be installed at right angles to the roadway centerline at the depth, dimensions, and spacing shown in the construction drawings. Tie bars shall be included in the cost of Combination Concrete Curb and Gutter, Type B (Modified) and Combination Concrete Curb and Gutter, Type B (Special). Refer to Article 606.07 of the Standard Specifications.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot for COMBINATION CONCRETE CURB AND GUTTER, TYPE B (MODIFIED) or COMBINATION CONCRETE CURB AND GUTTER, TYPE B (SPECIAL), which prices shall include all labor, equipment, and material necessary to complete the work as specified. Measurement shall be along the flowline of the gutter at the limits shown in the plans, including the limits of the adjacent curb and gutter transitions.

XX001683 INFORMATION KIOSK

Description

This work shall consist of furnishing and installing an information kiosk in locations shown on the plans, details and as specified herein.

Submittals

Submit with manufacturer's technical data, installation instructions for each manufactured product, including certification that each product complies with specified requirements, manufacturer's project references, and manufacturer's warranty. Warranty shall be a period of 5 years beginning on the installation date of each kiosk. Submit shop drawings showing complete information of fabrication for approval prior to installation.

Construction Requirements

The information kiosk shall be acquired from:

MCS Office Technologies
Attn: Todd McNutt, President
307 S. Neil St., Champaign, IL 61820
217-784-1083 Office
217-781-4705 Mobile
todd@mcsot.com
www.mcsot.com

Model: "Champaign Urbana Mass Transit Internal Kiosk Design v3.1". See plans for locations of the information kiosks.

Prior to installation, Contractor shall complete construction of the conduit feeds and concrete platform/sidewalk at the kiosk locations as detailed in the plans. Contractor shall coordinate installation of the kiosks with the Champaign-Urbana Mass Transit District. Representatives of the manufacturer must perform the installations to ensure compliance with the manufacturer's installation instructions and to warranty the kiosk.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for INFORMATION KIOSK, which price shall include all labor, equipment, and material necessary to complete the work as specified.

XX008263 PORTLAND CEMENT CONCRETE PLATFORM (SPECIAL)

Description

This work shall consist of constructing a Portland cement concrete transit platform consisting of a thickened edge Portland cement concrete sidewalk, prepared aggregate base, including reinforcing, expansion and contraction joints, and specified concrete finishing. The work shall be completed in accordance with the applicable portions of Sections 301, 420, and 424 of the Standard Specifications, except as herein modified and as detailed in the plans.

Construction Requirements

The transit platform cross section shall be continuous and uniform along the full length of the platform. The portion of the platform abutting the paved roadway surface may be placed monolithically with the Combination Concrete Curb and Gutter, Type B (Special) section as shown in the plans and shall be constructed with a thickened edge with a depth equal with the bottom of the adjacent pavement thickness. The Contractor may also propose an optional construction joint at the location shown in the plans. If the optional construction joint is installed, the epoxy coated tie bars connecting the platform to the curb and gutter section must be installed at right angles to the platform

edge at the depth and spacing shown in the plans. The optional construction joint and associated tie bars will not be paid for separately but if used, shall be included in the cost of Portland Cement Concrete Platform (Special).

Portions of the platform not abutting roadway pavement, but adjacent to other paved surfaces, such as sidewalk or bike path, shall be constructed with a thickened edge. The depth of the thickened edge shall be such that the overlap between the platform section and the adjacent paved section shall be a minimum of 4 inches, or to the depth shown in the plans, whichever is greater. Preformed joint filler, as detailed in the plans, shall be installed where the platform abuts other paved surfaces.

Joints in the concrete transit platform shall be in continuation of the joints in the adjacent Portland cement concrete pavement or curb and gutter, unless otherwise shown on the plans or directed by the Engineer. Transverse contraction joints shall be constructed in accordance with Article 420.05 (c) of the Standard Specifications, omitting load transfer devices. Expansion joints shall be constructed in accordance with Article 420.05 (d) of the Standard Specifications, omitting dowel bar assemblies, and Article 424.07 of the Standard Specifications.

Measurement and Payment

This work will be measured and paid for at the contract unit price per square foot for PORTLAND CEMENT CONCRETE PLATFORM (SPECIAL), which price shall include all labor, equipment, and material necessary to complete the work as specified. Measurement shall include the flat surface area only; vertical surfaces will not be measured for payment.

The furnishing and installation of detectable warnings will be paid for separately.

BUS SHELTER, TYPE 1
BUS SHELTER, TYPE 1A
BUS SHELTER, TYPE 2

Description

This work shall consist of furnishing and installing bus shelters at the locations shown in the plans, in accordance with the details shown in the plans and as specified herein.

Submittals

Submit with manufacturer's technical data, installation instructions for each manufactured product, including certification that each product complies with specified requirements, manufacturer's project references, and manufacturer's warranty.

General Requirements

The bus shelters shall be acquired from:

Brasco International
32400 Industrial Dr.
Madison Heights, MI 48071
800-893-3665
sales@brasco.com
www.brasco.com

Model: "ECLIPSE EC-Series Transit Shelter". See plans for locations and sizes of the bus shelters.

Product Specifications

Design and fabrication of 4' x 8' (Type 1A), 5' x 12' (Type 1), and 9' x 24' (Type 2) Passenger Waiting Shelters and related site furnishings.

REFERENCES

- The Aluminum Association – Aluminum Design Manual 2010
- American Welding Society – AWS D1.2/D1.2M: 2008
- ASCE 7 2010 Minimum Design Loads for Buildings and Other Structures
- ASTM B 209 Specification for Aluminum and Aluminum Alloy - Sheet and Plate
- ASTM B221 Specification for Aluminum and Aluminum Alloy – Extruded Bars, Rods, Wire, Profiles, and Tubes
- ANSI Z97.1-1975 Safety Glazing Materials Used in Buildings
- Americans with Disabilities Act of 1990 (ADA)

SUBMITTALS

- A. Product Data - Manufacturers' brochures, specifications, and installation instructions.
- B. Shop drawings of the complete shelter layout, includes cut section and connection details.
- C. Submit structural engineering design documents bearing the seal of a structural engineer registered in the state of the project.
- D. Manufacturer's statement of certification that materials meet or exceed all applicable loadings (wind load, live load, dead load, snow load) for the project location in accordance with IBC 2006, and ASCE 7-05.
- E. Samples of shelter finish.

QUALITY ASSURANCE

- A. Shelter shall be designed to comply with local building codes.
- B. Shelter manufacturer shall have a minimum of 10 years' experience in designing, fabrication, and installing the specified shelter.

DELIVERY AND STORAGE

- A. Roof, Walls and other components shall be assembled to the maximum extent possible in clearly labeled crates and cartons.
- B. Store Materials in clean, dry area in accordance with manufacturer's instructions. Keep materials in original, unopened containers and packaging until installation. Do not store in direct contact with the sun or rain.

WARRANTY

- A. Manufacturer warrants that shelter shall be free from defect in parts and manufacture for a period of one year.
- B. Manufacturer shall maintain inventory of replacement parts for ten years after delivery of shelter.

Product Requirements

MANUFACTURER

- A. Shelters shall be models EC0408, EC0512, and EC0924 as manufactured by Brasco International, Inc.

MATERIALS

- A. All extruded aluminum components shall be 6063T5 Custom aluminum extrusion, with recessed pockets to accept glazing and concealed connections.
- B. Components shall be sized to comply with the load requirement for the project and shall not be less than the dimensions shown on the plan.

COLUMNS

- A. Rear columns shall be 6" dia. X .250" wall thickness.
- B. Front columns shall be 4.5" dia. X .250" wall thickness.
- C. Columns contain four integral glazing pockets for gasket and 3/8" wall glazing.
- D. The columns are trimmed with flush snap-in covers to conceal structural fasteners where glazing isn't captured.

HORIZONTAL BEAMS

- A. The horizontal rear wall header beam shall be 4.5" dia. x .250 wall thickness with four integral glazing pockets for the 5' deep shelters. The horizontal rear wall header beam shall be 6" dia. x .250 wall thickness with four integral glazing pockets for the 9' deep shelters. The Intermediate header beam shall be 4.5" diam. X .250" wall thickness with four integral glazing pockets for 9' deep shelters.
- B. Horizontal lower sill beams shall be 2.5" dia. x .125 wall thickness with two integral glazing pockets.
- C. Rear header beam shall be continuous welded to attachment sleeves.
- D. The horizontal beams are trimmed with flush snap-in covers to conceal structural fasteners where glazing isn't captured.

ROOF

- A. Roof shall be assembled to the maximum extent possible in clearly labeled crates and cartons.
- B. Roof assembly will be field attached to columns with concealed fasteners.
- C. Rafters shall be Arch Design, minimum 3/8" thick aluminum with welded keyway for attachment to header beam.
- D. Roof Glazing shall be .125" aluminum with a matching powder coat painted finish
- E. Roof material shall be captured with channels at front and back of roof. There should also be pressure caps with vinyl gasket at each rafter for proper engagement.

FASTENERS

- A. All fasteners shall be stainless steel, aluminum, or a combination of both. Zinc plated fasteners shall not be accepted.
- B. Ground attachment anchors shall be sized to meet wind load requirements, and shall be Stainless Steel.

WALL PANELS

- A. Wall panels shall be 3/8" Clear Tempered Safety Glass. Glass shall be contained in to the gasketed integral pockets of the columns, header beam and sill beams.

FINISHES

- A. All aluminum surfaces shall be Traffic Black Powder Coat Painted Finish – RAL 9017.

OPTIONS

- A. 6' Eclipse Bench – see bench specification
- B. 10' Lean Rail – see lean rail specification
- C. LED Light – see led light specification.

Construction Requirements

Prior to installation, Contractor shall complete construction of the transit platforms or sidewalks at the shelter locations as detailed in the plans. Contractor shall coordinate installation of the shelters with the Champaign-Urbana Mass Transit District.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for BUS SHELTER, of the type specified, which price shall include all labor, equipment, and material necessary to complete the work as specified.

TRAFFIC SIGNAL SPECIFICATIONS

<u>81028350</u>	<u>UNDERGROUND CONDUIT, PVC, 2" DIA.</u>
<u>81028360</u>	<u>UNDERGROUND CONDUIT, PVC, 2½" DIA.</u>
<u>81028370</u>	<u>UNDERGROUND CONDUIT, PVC, 3" DIA.</u>
<u>81028390</u>	<u>UNDERGROUND CONDUIT, PVC, 4" DIA.</u>
<u>81028400</u>	<u>UNDERGROUND CONDUIT, PVC, 5" DIA.</u>

Description

This work shall consist of furnishing and installing PVC conduit of the size specified in accordance with Section 810 of the Standard Specifications and the following additions or exceptions.

All conduits used for electrical systems shall be grey in color. All conduits used for fiber optic interconnect cable shall be orange in color. All conduits shall be provided with ¼" continuous nylon pull ropes approved by the Engineer. A minimum of 2' of rope shall be provided at each end of a conduit run.

All conduits augered below pavement shall be Schedule 80 PVC. The term augered shall include both the pushed and bored method of installing the conduit. Because of the differences in equipment and techniques, the Contractor may use either method to install the conduit for the term augered.

The substitution of HDPE conduit of similar schedule for PVC conduit shall be permitted with no change in compensation. The substitution of galvanized steel conduit for PVC conduit shall be permitted with no change in compensation.

When PVC conduit is required to be spliced to steel conduit sections, a heavy wall set screw connector with PVC female adapter shall be installed and sealed by duct seal and plastic tape.

When HDPE conduit is required to be spliced to steel conduit sections, a suitable threaded connector shall be installed.

Intercepting existing conduit, including all required adapters, shall be included in the cost of the respective conduit pay item, and no additional compensation will be allowed.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot for UNDERGROUND CONDUIT, PVC, of the size specified, which price shall include all labor, equipment, and material necessary to complete the work as specified.

Backfilling of conduit trenches with earth, screenings/sand, or controlled low-strength material will not be paid for separately but shall be included in the contract unit price per foot for UNDERGROUND CONDUIT, PVC.

81400700 HANDHOLE, PORTLAND CEMENT CONCRETE
81400720 DOUBLE HANDHOLE, PORTLAND CEMENT CONCRETE

Description

This work shall consist of furnishing and installing precast concrete handholes in accordance with Section 814 of the Standard Specifications and the following additions or exceptions.

Composite concrete handholes are not allowed.

Handholes used for the traffic signal system shall have the words "TRAFFIC SIGNALS" cast into the cover. Handholes used for the roadway lighting system shall have the words "STREET LIGHTING" cast into the cover.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for HANDHOLE, or DOUBLE HANDHOLE, of the material specified, which price shall include all labor, equipment, and material necessary to complete the work as specified.

81500120 GULFBOX JUNCTION, COMPOSITE CONCRETE

Description

This work shall consist of furnishing and installing a gulfbox junction in accordance with Section 815 of the Standard Specifications and the following additions or exceptions.

The gulfbox shall be composite concrete and manufactured by CDR Systems or approved equal. The gulfbox dimensions shall be 13"W x 24"L x 12"D with flared walls. The gulfbox cover shall be of the same material as the gulfbox. The gulfbox cover and collar shall be standard concrete grey color in sidewalks and shall be the manufacturer's dark green color in grass areas.

Gulfboxes used for the traffic signal system shall have the words "TRAFFIC SIGNALS" cast into the cover. Gulfboxes used for the roadway lighting system shall have the words "STREET LIGHTING" cast into the cover. Gulfboxes used for the communication system shall have the word "COMMUNICATIONS" cast into the cover.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for GULFBOX JUNCTION, COMPOSITE CONCRETE, which price shall include all labor, equipment, and material necessary to complete the work as specified.

87100020 FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, MM12F SM12F

Description

This work shall consist of furnishing and installing fiber optic cable and all required accessories in accordance with Section 871 of the Standard Specifications and the following additions or exceptions.

The loose-tube, gel-filled, 24-fiber cable shall have twelve 62.5/125 multi-mode fibers and twelve single-mode fibers and shall meet the requirements of Article 1076.02 of the Standard Specifications. The fiber optic cable shall be manufactured by Corning Cable Systems or approved equal and shall be made in the United States.

A minimum of 13' of slack cable shall be provided in each controller cabinet.

All terminations necessary or directed by the Engineer shall be included in this pay item. All fiber runs shall be continuous without splices between termination sites. Six multi-mode fibers and six single-mode fibers shall be terminated at each end of each fiber run in each traffic signal controller cabinet. The fiber shall be terminated by fusion splicing using ST connectors manufactured by Corning Cable Systems or approved equal.

A No. 12 stranded copper wire shall be installed in the same conduit as the fiber optic cable for a tracer cable. The copper wire shall terminate at each handhole, gulfbox junction, and controller cabinet. A tag shall be placed on the copper wire in each handhole, gulfbox junction, and controller cabinet with the legend "Fiber Optic Tracer Cable". This work will not be paid for separately but shall be included in the cost of the Fiber Optic Cable, and no additional compensation will be allowed.

Testing

The fiber optic cable shall be attenuation tested according to Articles 1076.02 and 801.13(d)(2) of the Standard Specifications. The Contractor shall test all terminated fibers. The attenuation of each multi-mode fiber shall not exceed 3.50 dB/km measured at 850 nm and shall not exceed 1.00 dB/km measured at 1300 nm. The connector loss shall not exceed the manufacturer's recommended specifications.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot for FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, MM12F SM12F, which price shall include all labor, equipment, and material necessary to complete the work as specified, including all cable terminations.

**87301900 ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING
CONDUCTOR, NO. 6 1C**

Description

This work shall consist of furnishing and installing electric cables in conduit, complete with all splicing, identifications, and terminations, in accordance with Section 873 of the Standard Specifications, the details in the plans, and the following additions or exceptions.

The insulation color shall be green.

Equipment grounding conductors shall be made continuous by splicing. Splices shall only be permitted in handholes, double handholes, post bases, and pole handholes unless otherwise directed by the Engineer. All splices shall be irreversible hydraulic compression splices in accordance with Article 1066.06 of the Standard Specifications. No other types of splices shall be permitted. All compression splices shall be neat and direct to the path of ground.

Equipment grounding conductors shall be connected to each grounding electrode conductor in the traffic signal system with irreversible hydraulic compression splices or connected to each ground rod in the traffic signal system with exothermic welds. Refer to the traffic signal grounding diagrams in the plans for additional information.

All required compression splices and all exothermic welds not included in the cost of a concrete foundation shall be included in the cost of Electric Cable in Conduit, Equipment Grounding Conductor, No. 6 1C.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot for ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C, which price shall include all labor, equipment, and material necessary to complete the work as specified.

87502680 TRAFFIC SIGNAL POST, ALUMINUM 14 FT.

Description

This work shall consist of furnishing and installing a traffic signal post in accordance with Section 875 of the Standard Specifications, the details in the plans, and the following additions or exceptions.

The post and base shall be made of aluminum. The post shall be furnished with an aluminum pole cap. The base shall be furnished with an aluminum reinforcing collar and a grounding lug suitable for connecting a copper equipment grounding conductor. The post, cap, base, and collar shall be finished with a standard black finish. The Contractor shall apply an anti-seize paste compound on all nuts and bolts prior to assembly.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for TRAFFIC SIGNAL POST, ALUMINUM 14 FT., which price shall include all labor, equipment, and material necessary to complete the work as specified.

87600200 PEDESTRIAN PUSH-BUTTON POST, TYPE II

Description

This work shall consist of constructing a concrete foundation and furnishing and installing a pedestrian push-button post in accordance with Section 876 of the Standard Specifications, the details in the plans, and the following additions or exceptions.

The pedestrian push-button post shall be a 48-inch tall, 4-inch square steel post with a 10-inch multi-directional surface mount slip base. The post and base shall be manufactured by Xcessories Squared or approved equivalent. The post and base shall be finished with a black powder coat finish.

The Contractor shall apply an anti-seize paste compound on all nuts and bolts prior to assembly.

The foundation shall be constructed of Class SI concrete in accordance with Section 1020 of the Standard Specifications. The foundation shall be constructed in accordance with the details in the plans and shall have a minimum diameter of 12 inches and a minimum depth of 30 inches. The integral color of the concrete foundation shall match the color of the adjacent proposed concrete sidewalk. The concrete foundation shall be included in the cost of the pedestrian push-button post.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for PEDESTRIAN PUSH-BUTTON POST, TYPE II, which price shall include all labor, equipment, and material necessary to complete the work as specified, including the integrally colored concrete foundation.

87702880 STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 30 FT.
87702890 STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 32 FT.

Description

This work shall consist of furnishing and installing a steel combination mast arm assembly and pole in accordance with Section 877 of the Standard Specifications, the details in the plans, and the following additions or exceptions.

The steel combination mast arm assembly and pole manufacturer shall be Valmont or approved equivalent. The pole, base, pole cap, signal arm, and luminaire arm shall have a powder coated black paint finish over galvanized steel. The stainless steel mesh and band at the pole base shall be painted black.

The luminaire arm shall have a span of 15 feet and a rise of 4 feet and shall have an appearance similar to the “SPCA8” luminaire arm provided as part of the “Ornamental Light Unit, Complete” pay item. The luminaire arm shall have a 2³/₈” outside diameter tenon for connecting to the proposed luminaire. The luminaire arm shall be designed for the loading requirements of Article 1077.03 of the Standard Specifications and the loading requirements of the proposed luminaire. The luminaire arm connections shall be designed to prevent rotation of the luminaire arm on the mast arm pole. The luminaire mounting height as measured from the pole base shall be 31 feet.

The Contractor shall apply an anti-seize paste compound on all nuts and bolts prior to assembly.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for STEEL COMBINATION MAST ARM ASSEMBLY AND POLE, of the signal arm length specified, which price shall include all labor, equipment, and material necessary to complete the work as specified.

87800100 CONCRETE FOUNDATION, TYPE A

Description

This work shall consist of constructing a concrete foundation for a traffic signal post in accordance with Section 878 of the Standard Specifications, the details in the plans, and the following additions or exceptions.

The No. 6 AWG bare, solid copper grounding electrode conductor shall be exothermically welded to the ground rod in the concrete foundation. The exothermic weld shall be included in the cost of the concrete foundation.

The integral color of the concrete foundation shall match the color of the adjacent proposed concrete sidewalk.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot of depth of CONCRETE FOUNDATION, TYPE A, which price shall include all labor, equipment, and material necessary to complete the work as specified, including the integral color of the concrete foundation.

87800200 CONCRETE FOUNDATION, TYPE D

Description

This work shall consist of constructing a concrete foundation for a traffic signal controller base in accordance with Section 878 of the Standard Specifications, the details in the plans, and the following additions or exceptions.

The ground rod for the concrete foundation shall be located in the double handhole at the controller cabinet rather than in the concrete foundation. A No. 6 AWG bare, solid copper grounding electrode conductor pigtail may be installed for use in splicing the equipment grounding conductors in the double handhole at the controller cabinet. The grounding electrode conductor pigtail shall be exothermically welded to the ground rod in the double handhole at the controller cabinet. The grounding electrode conductor pigtail and exothermic weld shall be included in the cost of the concrete foundation.

The anchor bolts shall be deleted from the concrete foundation. The controller cabinet shall be mounted to the concrete foundation using ¼" x 2" Tapcon screws or as otherwise directed by the Engineer.

A 2" diameter PVC conduit shall be provided in the concrete foundation for future use. The conduit shall extend two feet beyond the concrete foundation and shall be capped below grade. The 2" diameter PVC conduit shall be included in the cost of the concrete foundation.

At the intersection of Green Street and First Street, the concrete foundation shall not have a concrete apron. The adjacent proposed concrete sidewalk will serve as the concrete apron.

At the intersection of White Street and Fourth Street, the concrete apron shall match the width of the concrete foundation and shall extend a minimum of 3 feet beyond the concrete foundation. The concrete apron shall be a minimum of 6" thick. The cost of the concrete apron shall be included in the cost of the concrete foundation.

The integral color of the concrete foundation shall match the color of the adjacent proposed concrete sidewalk.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot of depth of CONCRETE FOUNDATION, TYPE D, which price shall include all labor, equipment, and material necessary to complete the work as specified, including the integral color of the concrete foundation.

87800400 CONCRETE FOUNDATION, TYPE E, 30-INCH DIAMETER

Description

This work shall consist of constructing a concrete foundation for a traffic signal mast arm pole in accordance with Section 878 of the Standard Specifications, the details in the plans, and the following additions or exceptions.

The No. 6 AWG bare, solid copper grounding electrode conductor shall be exothermically welded to the ground rod in the concrete foundation. The exothermic weld shall be included in the cost of the concrete foundation.

The integral color of the concrete foundation shall match the color of the adjacent proposed concrete sidewalk.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot of depth of CONCRETE FOUNDATION, TYPE E, 30-INCH DIAMETER, which price shall include all labor, equipment, and material necessary to complete the work as specified, including the integral color of the concrete foundation.

88040070 SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, BRACKET MOUNTED

88040090 SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, MAST ARM MOUNTED

88040150 SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 5-SECTION, BRACKET MOUNTED

88040160 SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 5-SECTION, MAST ARM MOUNTED

Description

This work shall consist of furnishing and installing a light emitting diode (LED) signal head in accordance with Section 880 of the Standard Specifications, the details in the plans, and the following additions or exceptions.

All circular and arrow LED signal modules shall measure 12" in diameter. The lens for a red or yellow signal module shall be tinted red or yellow. The lens for a green signal module shall be clear.

All signal modules shall be manufactured by Dialight Corporation and shall have a 15-year warranty. The polycarbonate signal head shall be black in color. Brackets for mast arm mounted signal heads shall be unpainted. Bracket mounted signal heads shall be mounted with black polycarbonate brackets fastened to the pole or post with stainless steel banding, 3/4" wide by 0.025" thick, or as otherwise directed by the Engineer.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for SIGNAL HEAD, POLYCARBONATE, LED, of the number of signal faces, the number of signal sections in each signal face, and the method of mounting specified, which price shall include all labor, equipment, and material necessary to complete the work as specified.

**88102825 PEDESTRIAN SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE,
BRACKET MOUNTED WITH COUNTDOWN TIMER**

Description

This work shall consist of furnishing and installing a light emitting diode (LED) pedestrian signal head in accordance with Section 881 of the Standard Specifications, the details in the plans, and the following additions or exceptions.

Each directional unit shall consist of one LED pedestrian signal module and one LED countdown pedestrian signal module. The nominal dimensions of each module shall be 12” by 12” as detailed in the plans.

The pedestrian signal module shall have the two-symbol overlay configuration. The symbols for the walking person (“walk”) and the upraised hand (“don’t walk”) shall be full symbols.

All pedestrian signal modules shall be manufactured by Dialight Corporation and shall have a 15-year warranty. The polycarbonate pedestrian signal head shall be black in color. Pedestrian signal heads shall be mounted with black polycarbonate brackets fastened to the pole or post with stainless steel banding, 3/4” wide by 0.025” thick, or as otherwise directed by the Engineer.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for PEDESTRIAN SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, BRACKET MOUNTED WITH COUNTDOWN TIMER, which price shall include all labor, equipment, and material necessary to complete the work as specified.

88700090 CONFIRMATION BEACON

Description

This work shall consist of furnishing and installing a confirmation beacon and mounting hardware in accordance with Section 887 of the Standard Specifications, the details in the plans, and the following additions or exceptions.

The Contractor shall furnish and install confirmation beacons at the locations shown on the plans. This work shall include all necessary connections for proper operation of the beacons, including all

mounting hardware. The confirmation beacons shall be in accordance with Section 1072 of the Standard Specifications.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for CONFIRMATION BEACON, which price shall include all labor, equipment, and material necessary to complete the work as specified.

89500100 RELOCATE EXISTING SIGNAL HEAD
89500200 RELOCATE EXISTING PEDESTRIAN SIGNAL HEAD
89501150 RELOCATE EXISTING TRAFFIC SIGNAL POST

Description

This work shall consist of relocating an existing signal head, pedestrian signal head, or traffic signal post in accordance with Section 895 of the Standard Specifications, the details in the plans, and the following additions or exceptions.

The Contractor shall remove, store, protect, and reinstall the existing equipment to be relocated in a workmanlike manner to avoid damaging, denting, or scratching the material. Any repair or touch-up required shall be performed by the Contractor using a method approved by the Engineer and at the Contractor's expense. The equipment shall be reinstalled in accordance with the appropriate Articles of the Standard Specifications and as directed by the Engineer.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for RELOCATE EXISTING SIGNAL HEAD, RELOCATE EXISTING PEDESTRIAN SIGNAL HEAD, or RELOCATE EXISTING TRAFFIC SIGNAL POST, which prices shall include all labor, equipment, and material necessary to complete the work as specified.

89502380 REMOVE EXISTING HANDHOLE

Description

This work shall consist of the removal and disposal of existing handholes in accordance with Section 895 of the Standard Specifications and the following additions or exceptions.

The handhole shall be removed in its entirety. Portions of the existing cables and conduits that interfere in any way with the proposed construction shall be removed. Existing cables that do not interfere with the proposed construction shall be abandoned in place unless otherwise directed by the Engineer. Existing conduits that do not interfere with the proposed construction shall be capped and abandoned in place unless otherwise directed by the Engineer. Removal of the existing cables and

conduits shall be included in the cost of Remove Existing Handhole, and no additional compensation will be allowed.

Voids created by the removals shall be backfilled with controlled low-strength material unless otherwise directed by the Engineer. All required excavation and backfill shall be included in the cost of Remove Existing Handhole.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for REMOVE EXISTING HANDHOLE, which price shall include all labor, equipment, and material necessary to complete the work as specified, including all excavation and backfill.

89502385 REMOVE EXISTING CONCRETE FOUNDATION

Description

This work shall consist of removing an existing concrete foundation in accordance with Section 895 of the Standard Specifications and the following additions or exceptions.

The concrete foundation shall be removed to a level at least three feet below the adjacent grade in accordance with Article 895.05 of the Standard Specifications. All portions of the existing foundation below this elevation that interfere in any way with the proposed construction shall be removed to the satisfaction of the Engineer, and no additional compensation will be allowed.

Portions of the existing cables and conduits that interfere in any way with the proposed construction shall be removed. Existing cables that do not interfere with the proposed construction shall be abandoned in place unless otherwise directed by the Engineer. Existing conduits that do not interfere with the proposed construction shall be capped and abandoned in place unless otherwise directed by the Engineer. Removal of the existing cables and conduits shall be included in the cost of Remove Existing Concrete Foundation, and no additional compensation will be allowed.

Voids created by the removals shall be backfilled with controlled low-strength material unless otherwise directed by the Engineer. All required excavation and backfill shall be included in the cost of Remove Existing Concrete Foundation.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for REMOVE EXISTING CONCRETE FOUNDATION, which price shall include all labor, equipment, and material necessary to complete the work as specified, including all excavation and backfill.

X0322281 WIDE AREA VIDEO DETECTION SYSTEM COMPLETE

Description

This work shall consist of furnishing and installing a wide area video detection system in accordance with the details in the plans and as specified herein.

The wide area video detection system shall be TS-1 and manufactured by Iteris. The wide area video detection system at each signalized intersection shall include four RZ-4 Advanced cameras with Wide Dynamic Range technology (RZ-4A WDR), one Vantage EdgeConnect quad-view remote communications module, one Vantage VRack shelf-mounted TS-1 detector rack, and one 10” Defender LCD or equivalent video monitor.

The coaxial cable to be used between the video detection camera and the quad-view remote communications module shall be Belden 8281 or approved equivalent. The coaxial cable shall be a continuous unbroken run from the camera to the communications module and shall be included in the cost of the Wide Area Video Detection System Complete.

The power cable shall be No. 14 AWG three conductor signal cable in accordance with Section 873 of the Standard Specifications. A factory-made, pre-assembled pigtail cable and an attached Deutsch Advanced Interconnect HPC-008-0002 connector, or the latest connector used for the video detection camera, shall be provided for each camera and shall be included in the cost of the Wide Area Video Detection System Complete. Field-assembled cables will not be accepted. Each connection shall be sealed to prevent water penetration. The factory-made, pre-assembled pigtail cable shall be spliced to the power cable at the mast arm pole handhole and shall be included in the cost of the Wide Area Video Detection System Complete.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for WIDE AREA VIDEO DETECTION SYSTEM COMPLETE, which price shall be considered payment in full for all labor, equipment, and material necessary to complete the work as specified, including the pigtail and coaxial cables. Individual components of the wide area video detection system will not be paid for separately.

The No. 14 AWG three conductor signal cable required for each video detection camera will be paid for separately.

X0323003 TEMPORARY ELECTRIC SERVICE INSTALLATION

Description

This work shall consist of furnishing and installing a temporary electric service installation in accordance with Sections 804 and 805 of the Standard Specifications, the details in the plans, and the following additions or exceptions.

The temporary electric service installation shall include a wood pole, grounding electrode, meter socket, weatherproof enclosures, circuit breakers, contactors, photocell, weatherhead, conduit, cable, junction box, and other miscellaneous items. The meter will be furnished by Ameren Illinois.

The wood pole shall be in accordance with Article 1069.04 of the Standard Specifications.

The grounding electrode shall be a ¾" diameter x 10' long copper-clad steel ground rod in accordance with Section 806 of the Standard Specifications. The grounding electrode shall be installed in the proposed junction box adjacent to the wood pole. The grounding conductors shall be exothermically welded to the grounding electrode in the junction box.

The meter socket shall be in accordance with Ameren Illinois requirements. The service size shall be 100A, 120/240V, single phase, three wire.

The service disconnect switch shall be a 2P, 100A fused disconnect switch, service rated NEMA 4X, and in accordance with Article 1086.01 of the Standard Specifications. The enclosure shall be stainless steel.

The enclosure for the 2P, 30A circuit breakers and lighting contactor shall be rated NEMA 4X. The enclosure shall be stainless steel.

The photocell switch shall have a locking type receptacle and integral surge arrestors. Provide brackets to mount the photocell to the wood pole as directed by the Engineer.

The weatherhead shall be in accordance Article 1086.02(a) of the Standard Specifications.

The conduit and cable shall be in accordance with the technical specifications for Underground Conduit and Electric Cable in Conduit.

The junction box shall be in accordance with the technical specification for Junction Box (Special).

All conduit and cable required for the temporary electric service installation as shown on the plans shall be included in the cost of the Temporary Electric Service Installation, and no additional compensation will be allowed.

All temporary wire connections and temporary wire caps that are required to install the traffic signal and roadway lighting cables for the temporary electric service installation as shown on the plans shall be included in the cost of the Temporary Electric Service Installation, and no additional compensation will be allowed.

The Contractor shall be responsible for coordinating all requirements for the temporary electric service installation with Ameren Illinois and shall adhere to latest standards as provided by Ameren Illinois.

The Contractor shall coordinate all requirements and fees for the temporary electric service installation with Ameren Illinois. No additional compensation will be allowed for work required for the electric service or utility connection fees, even though not explicitly shown on the plans, or specified herein.

Removal and disposal of the temporary electric service installation shall be performed in accordance with Section 845 of the Standard Specifications. The Contractor shall coordinate with Ameren Illinois for disconnection of the temporary electric service installation. The proposed junction box adjacent to the wood pole shall be removed in accordance with the technical specification for Remove Existing Junction Box. The Contractor shall dispose of the removed equipment in accordance with Article 202.03 of the Standard Specifications.

Traffic signal and roadway lighting cables installed for the temporary electric service installation shall be removed and disposed of in accordance with Article 202.03 of the Standard Specifications. Conduits installed for the temporary electric service installation that interfere with the proposed construction shall be removed and disposed of in accordance with Article 202.03 of the Standard Specifications. Conduits that do not interfere with the proposed construction shall be capped and abandoned in place.

Voids created by the removals shall be backfilled with controlled low-strength material unless otherwise directed by the Engineer. All required excavation and backfill shall be included in the cost of the Temporary Electric Service Installation.

Removal and disposal of the temporary electric service installation, including removal of temporary wire connections and temporary wire caps, shall be included in the cost of the Temporary Electric Service Installation, and no additional compensation will be allowed.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for TEMPORARY ELECTRIC SERVICE INSTALLATION, which price shall be considered payment in full for all labor, equipment, and material necessary to complete the work as specified.

X0327698 LED INTERNALLY ILLUMINATED STREET NAME SIGN

Description

This work shall consist of furnishing and installing an LED internally illuminated street name sign in accordance with the details in the plans and as specified herein.

The LED internally illuminated street name sign shall be the RAZOR Internally Illuminated LED Sign manufactured by Temple Edge-Lit or approved equal. The sign dimensions shall be 72”L x 18”H x 1.6”D. The sign shall have a white border and legend on a green background. The font shall be Highway Gothic Series D. The housing shall have a standard black finish.

The sign shall not have an individual photocell and will be controlled by the proposed roadway lighting controller as shown on the plans.

The sign shall be suspended below a traffic signal mast arm using the under-hang mount installation. The mounting hardware shall allow swinging of the sign to reduce mast arm wind loads. Brackets shall be adjustable for leveling the sign for use on any size mast arm. Brackets shall be cleaned, prepared, primed, and finished with a standard black finish.

The sign legend and overall layout shall be approved by the City of Champaign prior to installation of the internally illuminated street name sign.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for LED INTERNALLY ILLUMINATED STREET NAME SIGN, which price shall include all labor, equipment, and material necessary to complete the work as specified.

X8140115 HANDHOLE TO BE ADJUSTED

Description

This work shall include all labor, equipment, tools, and materials needed to adjust existing handholes located within proposed sidewalks or as directed by the Engineer.

Materials

The frame and lid for the handhole to be adjusted shall be a Neenah R-6660-JP Light Duty Square Frame and Lid.

Construction Requirements

The Contractor shall remove the existing handhole frame and lid and dispose of them in accordance with Article 202.03 of the Standard Specifications. The top of the existing handhole shall be saw cut to the appropriate elevation and slope to fit within the proposed sidewalk. The Contractor shall provide a new frame and lid for the adjusted handhole. The new handhole frame shall be cast into the proposed sidewalk. Joints in the proposed sidewalk shall be tooled around the handhole frame as directed by the Engineer. The joint between the top of the existing handhole and the bottom of the proposed sidewalk shall be sealed as directed by the Engineer.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for HANDHOLE TO BE ADJUSTED, which price shall include all labor, equipment, and material necessary to complete the work as specified.

X8570226 FULL-ACTUATED CONTROLLER AND TYPE IV CABINET, SPECIAL

Description

This work shall consist of furnishing and installing a full-actuated controller in a controller cabinet in accordance with Sections 857 and 862 of the Standard Specifications, the details in the plans, and the following additions or exceptions.

The traffic signal controller and controller cabinet shall be in accordance with City of Champaign basic plan CHA8-TS1-12 as provided by Brown Traffic Products. The traffic signal controller shall be the Eagle EPAC model M52 with fiber optic modem. The controller cabinet shall include a fiber enclosure. NTCIP software shall be included. The malfunction management unit shall be the EDI Conflict Monitor SSM-12LEip with Ethernet port. The controller cabinet shall not include a separate battery cabinet for the uninterruptable power supply (UPS).

The Contractor shall submit a detailed plan of the controller, cabinet, and all peripheral equipment included in the cabinet to the City of Champaign for verification and approval prior to placing any material order.

The Type IV controller cabinet shall be the Eagle Size P base mounted cabinet. The controller cabinet shall be constructed of unpainted aluminum.

The controller cabinet shall contain separate ground and neutral buses. The neutral bus shall be electrically isolated from ground. The controller cabinet shall be bonded to the equipment grounding conductor in accordance with the NEC and the NESC.

The controller cabinet shall contain an engraved laminated plastic nameplate with the following message: "CAUTION – TRAFFIC SIGNAL MAST ARM POLES HAVE TWO SOURCES OF POWER. LUMINAIRES AND INTERNALLY ILLUMINATED STREET NAME SIGNS ON TRAFFIC SIGNAL MAST ARM POLES ARE FED FROM THE LIGHTING CONTROLLER CABINET." The nameplate shall be red with white letters, and the letters shall be ¼" high. The nameplate shall be mounted with corrosion-resistant screws in a prominent location inside the controller cabinet.

The UPS shall be in accordance with Section 862 of the Standard Specifications and shall provide a minimum of two hours of full run-time operation. The batteries for the UPS shall be 85 GXL HP. All equipment required for the UPS, including the batteries, shall be housed in the traffic signal controller cabinet. The UPS will not be paid for separately but shall be included in the cost of the full-actuated controller and cabinet.

The Contractor shall make all necessary connections of the traffic signal cables in the controller cabinet.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for FULL-ACTUATED CONTROLLER AND TYPE IV CABINET, SPECIAL, which price shall include all labor, equipment, and material necessary to complete the work as specified, including the fiber enclosure, NTCIP software, and all equipment required for the UPS.

The additional equipment to be installed in the traffic signal controller cabinet that is associated with the wide area video detection system, the accessible pedestrian signals, and the emergency vehicle priority system will be paid for separately.

X8760200 ACCESSIBLE PEDESTRIAN SIGNALS

Description

This work shall consist of furnishing and installing accessible pedestrian signals in accordance with BDE Special Provision 80099, the details in the plans, and the following additions or exceptions. The accessible pedestrian signals shall be the latest version of the Navigator 2-wire accessible pedestrian system manufactured by Polara Enterprises. The push-button station shall have a standard black finish and shall include the push-button sign and all mounting hardware.

The accessible pedestrian system at each signalized intersection shall include one Central Control Unit and one E-Configurator. The control unit and configurator shall be included in the cost of the Accessible Pedestrian Signals, and no additional compensation will be allowed.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for ACCESSIBLE PEDESTRIAN SIGNALS, which price shall include all labor, equipment, and material necessary to complete the work as specified.

X8870300 EMERGENCY VEHICLE PRIORITY SYSTEM

Description

This work shall consist of furnishing and installing an emergency vehicle priority system that uses Global Positioning System (GPS) technology and radio communication in accordance with the details in the plans and as specified herein.

The emergency vehicle priority system shall be the latest version of the Opticom GPS System with matched components, manufactured by Global Traffic Technologies LLC. The emergency vehicle priority system at each signalized intersection shall include a pole-mounted GPS radio unit, a multimode phase selector, an auxiliary interface panel, a card rack with power supply, and GPS installation cable.

The GPS radio unit shall be mounted in accordance with the details in the plans and the manufacturer's installation requirements, or as otherwise directed by the Engineer.

The GPS installation cable shall be a continuous unbroken run from the GPS radio unit to the multimode phase selector. Splices in the installation cable are not allowed. Furnishing and installing the installation cable shall be included in the cost of the emergency vehicle priority system.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for EMERGENCY VEHICLE PRIORITY SYSTEM, which price shall include all labor, equipment, and material necessary to complete the work as specified, including all installation cable. Individual components of the emergency vehicle priority system will not be paid for separately.

XX005703 REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT, SPECIAL

Description

This work shall consist of the removal of existing traffic signal equipment in accordance with Section 895 of the Standard Specifications, the details in the plans, and the following additions or exceptions.

The Contractor shall remove the existing traffic signal equipment at the intersection of Green Street and First Street. The Contractor shall remove the equipment in a workmanlike manner to avoid damaging, denting, or scratching the material. Any repair or touch-up required shall be performed by the Contractor using a method approved by the Engineer and at the Contractor's expense. The Contractor shall store and protect the existing equipment at a location designated by the Engineer for pick-up by the City's forces.

The electric cable that conflicts with the proposed improvements shall be removed as shown on the plans or directed by the Engineer. The electric cable that is removed shall not be reused. The electric cable that does not conflict with the proposed improvements shall be abandoned in place unless otherwise shown on the plans or directed by the Engineer.

The removal and disposal of existing electric cable will not be paid for separately but shall be included in the contract lump sum price of Remove Existing Traffic Signal Equipment, Special and no additional compensation will be allowed.

Measurement and Payment

This work will be measured and paid for at the contract lump sum price for REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT, SPECIAL, which price shall include all labor, equipment, and material necessary to complete the work as specified. Removal of individual items will not be paid for separately.

ROADWAY LIGHTING SPECIFICATIONS

<u>81028350</u>	<u>UNDERGROUND CONDUIT, PVC, 2" DIA.</u>
<u>81028370</u>	<u>UNDERGROUND CONDUIT, PVC, 3" DIA.</u>
<u>81028400</u>	<u>UNDERGROUND CONDUIT, PVC, 5" DIA.</u>

Refer to the Traffic Signal Specifications for this pay item.

81400700 **HANDHOLE, PORTLAND CEMENT CONCRETE**

Refer to the Traffic Signal Specifications for this pay item.

81500120 **GULFBOX JUNCTION, COMPOSITE CONCRETE**

Refer to the Traffic Signal Specifications for this pay item.

<u>81702120</u>	<u>ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 1/C NO. 8</u>
<u>81702130</u>	<u>ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 1/C NO. 6</u>
<u>81702140</u>	<u>ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 1/C NO. 4</u>
<u>81702145</u>	<u>ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 1/C NO. 3</u>
<u>81702170</u>	<u>ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 1/C NO. 2/0</u>
<u>81702180</u>	<u>ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 1/C NO. 3/0</u>
<u>81702190</u>	<u>ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 1/C NO. 4/0</u>
<u>81702220</u>	<u>ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 1/C 350MCM</u>

Description

This work shall be performed in accordance with Section 817 of the Standard Specifications and the following additions or exceptions.

Revise the second sentence of the first paragraph of Article 1066.02 to read:

“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.”

Add the following to Article 1066.03 of the Standard Specifications:

“The cable shall be rated 600 volts and shall be UL Listed Type RHH/RHW/USE.”

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot for ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 1/C, of the size specified, which price shall include all labor, equipment, and material necessary to complete the work as specified.

<u>83600200</u>	<u>LIGHT POLE FOUNDATION, 24" DIAMETER</u>
<u>X8360120</u>	<u>LIGHT POLE FOUNDATION, SPECIAL</u>
<u>X8360210</u>	<u>LIGHT POLE FOUNDATION, 24" DIAMETER, SPECIAL</u>

Description

This work shall consist of constructing a concrete light pole foundation in accordance with Section 836 of the Standard Specifications, the details in the plans, and the following additions or exceptions.

The Contractor shall coordinate the bolt circle diameter of the foundation with the light poles to be installed on the foundation.

All concrete, reinforcement bars, anchor rods, conduit, grounding electrodes, grounding electrode conductors, exothermic welds, excavation, and backfill required to construct the light pole foundation shall be included in the cost of the foundation.

The integral color of the concrete foundation shall match the color of the adjacent proposed concrete sidewalk.

Light Pole Foundation, 24" Diameter

The top of the drilled shaft foundation shall be formed as a 27" diameter circle for a 34' light pole and as a 24" diameter circle for a 16'-6" light pole. The top of the foundation shall be formed to a minimum depth of 15" below the finished grade line. The depth of the drilled shaft foundation shall be a minimum of 8' below the finished grade line unless otherwise directed by the Engineer. Refer to the details in the plans for additional information.

Light Pole Foundation, 24" Diameter, Special

The top of the drilled shaft foundation shall be formed as a 27" x 27" square for a 34' light pole and as a 24" x 24" square for a 16'-6" light pole. The top of the foundation shall be formed to a minimum depth of 15" below the finished grade line. The depth of the drilled shaft foundation shall be a minimum of 8' below the finished grade line unless otherwise directed by the Engineer. Refer to the details in the plans for additional information.

Light Pole Foundation, Special

The foundation's shaft shall be formed as a 27" diameter circle for a 34' light pole in turf areas, as a 24" diameter circle for a 16'-6" light pole in turf areas, as a 27" x 27" square for a 34' light pole in paver areas, and as a 24" x 24" square for a 16'-6" light pole in paver areas. The foundation's shaft shall be formed for its entire depth. The foundation's footing shall be formed as a 6' x 6' square. The

depth of the foundation shall be a minimum of 3'-6" below the finished grade line unless otherwise directed by the Engineer. Refer to the details in the plans for additional information.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot for LIGHT POLE FOUNDATION, 24" DIAMETER, or LIGHT POLE FOUNDATION, 24" DIAMETER, SPECIAL, and at the contract unit price each for LIGHT POLE FOUNDATION, SPECIAL, which prices shall include all labor, equipment, and material necessary to complete the work as specified, including the integral color of the concrete foundation.

84200500 REMOVAL OF LIGHTING UNIT, SALVAGE
84200600 REMOVAL OF LIGHTING UNIT, NO SALVAGE

Description

This work shall consist of the removal and salvage or disposal of existing lighting units in accordance with Section 842 of the Standard Specifications and the following additions or exceptions.

Removal of existing lighting units shall include the pole, arm, luminaire, pole wiring, and associated hardware and appurtenances. Removal of existing light pole foundations will be paid for separately.

Removal of Lighting Unit, Salvage

Existing lighting units shall remain the property of the City of Champaign and shall be delivered by the Contractor to a location designated by the Engineer.

The Contractor shall remove, store, and protect the salvaged lighting units in a workmanlike manner to avoid damaging, denting, or scratching the material. Any repair or touch-up required shall be performed by the Contractor using a method approved by the Engineer and at the Contractor's expense. Any materials damaged beyond repair by the Contractor shall be replaced as determined by the Engineer and at the Contractor's expense.

Removal of Lighting Unit, No Salvage

Existing lighting units shall become the property of the Contractor and shall be disposed of by the Contractor in accordance with Article 202.03 of the Standard Specifications.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for REMOVAL OF LIGHTING UNIT, SALVAGE, or REMOVAL OF LIGHTING UNIT, NO SALVAGE, which prices shall include all labor, equipment, and material necessary to complete the work as specified.

84200804 REMOVAL OF POLE FOUNDATION

Description

This work shall consist of the removal and disposal of existing concrete foundations in accordance with Section 842 of the Standard Specifications and the following additions or exceptions.

The concrete foundations shall be removed to a point at least two feet below grade or at least one foot below any proposed construction. All portions of the existing foundation below this elevation that interfere in any way with the proposed construction shall be removed to the satisfaction of the Engineer, and no additional compensation will be allowed. Removed material shall be disposed of by the Contractor in accordance with Article 202.03 of the Standard Specifications.

Portions of the existing cables and conduits that interfere in any way with the proposed construction shall be removed. Existing cables that do not interfere with the proposed construction shall be abandoned in place unless otherwise directed by the Engineer. Existing conduits that do not interfere with the proposed construction shall be capped and abandoned in place unless otherwise directed by the Engineer. Removal of the existing cables and conduits shall be included in the cost of Removal of Pole Foundation, and no additional compensation will be allowed.

Voids created by the removals shall be backfilled with controlled low-strength material unless otherwise directed by the Engineer. All required excavation and backfill shall be included in the cost of Removal of Pole Foundation.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for REMOVAL OF POLE FOUNDATION, which price shall include all labor, equipment, and material necessary to complete the work as specified, including all excavation and backfill.

84500120 REMOVAL OF ELECTRIC SERVICE INSTALLATION

Description

This work shall consist of the removal and disposal of an existing electric service installation in accordance with Section 845 of the Standard Specifications and the following additions or exceptions.

The Contractor shall coordinate with the City of Champaign and Ameren Illinois for disconnection of the existing electric service installation. The Contractor shall dispose of the removed equipment in accordance with Article 202.03 of the Standard Specifications.

Voids created by the removals shall be backfilled with controlled low-strength material unless otherwise directed by the Engineer. All required excavation and backfill shall be included in the cost of Removal of Electric Service Installation.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for REMOVAL OF ELECTRIC SERVICE INSTALLATION, which price shall include all labor, equipment, and material necessary to complete the work as specified, including all excavation and backfill.

89502380 REMOVE EXISTING HANDHOLE

Refer to the Traffic Signal Specifications for this pay item.

X0325541 REMOVE EXISTING LIGHTING SYSTEM

Description

This work shall consist of the removal and disposal of underpass and sign luminaires in accordance with Section 842 of the Standard Specifications and the following additions or exceptions.

The removal of underpass and sign luminaires shall include all associated conduit, wire, junction boxes, hardware, and appurtenant materials. The equipment shall be removed as indicated on the plans.

The removed material shall become the property of the Contractor and shall be disposed of by the Contractor in accordance with Article 202.03 of the Standard Specifications.

Measurement and Payment

This work will be measured and paid for at the contract lump sum price for REMOVE EXISTING LIGHTING SYSTEM, which price shall include all labor, equipment, and material necessary to complete the work as specified. Removal of individual items will not be paid for separately.

X0326654 ORNAMENTAL LIGHT UNIT, COMPLETE

XX007468 PEDESTRIAN ST LIGHT

**XX008280 ORNAMENTAL STREET LIGHTING UNIT – SINGLE TEARDROP
FIXTURE**

Description

This work shall consist of furnishing and installing ornamental light poles and fixtures, complete with all hardware and accessories, in accordance with Section 830 of the Standard Specifications, the manufacturer's specifications, the details in the plans, and the following additions or exceptions.

Materials

The University District street lighting equipment as shown on the details in the plans shall be manufactured by Sternberg Lighting. Lighting units shall include light poles, pole bases, luminaire

arms, luminaires, banner arms, GFI duplex receptacles, and all mounting hardware and accessories as shown on the details in the plans.

The light pole, pole base, luminaire arm, luminaire, and all mounting hardware and accessories shall have a factory applied powder coating, black in color. The materials shall be polyester powder coated in a black textured finish with a UV resistant powder designed for outdoor use without color fade. The polyester powder coating process shall have pre-treatment steps that ensure complete cleaning and adherence of the coating materials. The polyester powder coating shall be electrostatically applied thermosetting polyester resin powder coating to a minimum thickness of 100 microns. The manufacturer shall coat the materials in its own facility. Out-sourcing of the powder coating process shall not be allowed.

The standard product warranty for the light poles and accessories shall be full parts and labor at the job site for one-year following the date of final completion. In addition to the standard product warranty, all surfaces featuring a powder-coat finish shall carry a full 5-year Finish Warranty. The coatings on all new poles shall carry this 5-year Finish Warranty from the date of shipment. The Finish Warranty shall provide for the full cost of refinishing in the event of a coating failure. The Contractor or the pole manufacturer shall submit full warranty information with a specific letter for this work, detailing the warranty terms and conditions in accordance with this special provision. The Finish Warranty shall provide protection against:

1. Peeling and Cracking.
2. Fading and Tint. UV damage and fading of more than 5% of the original color (tint).
3. Discoloration. Discoloration in excess of 5 E units (CIE 1976 CIELAB) as measured using procedure ASTM D 2244, latest revision, comparing an unexposed sample to an exposed surface after removal of dirt and chalk.
4. Gloss retention. Gloss retention in accordance with procedure ASTM D 523, latest revision, comparing an unexposed sample to an exposed surface after removal of dirt and chalk.
5. Corrosion and lack of adhesion. Corrosion and lack of adhesion as measured using procedure ASTM D 610, latest revision, based on the complete product assembly (for the purpose of this warranty, this procedure applies to both aluminum and steel).

Poles shall be delivered with a factory applied shipping wrap of cardboard or other material to fully protect against scratches and coating stain. Poles shall be blocked and bundled in groups of multiple poles, or use other equivalent means to prevent shifting and damage during transport.

The Contractor shall provide a sticker permanently attached to the light pole inside the handhole indicating the circuit and pole number as shown on the plans.

Ornamental Light Unit, Complete

The poles shall be designed and manufactured to withstand the increased wind load generated by the installation of banners 24" wide by 72" high with a mounting height of 16'-2" to the bottom of the lower banner bracket. The Contractor or the pole manufacturer shall submit a letter signed and sealed

by a structural engineer stating that the poles can withstand the increased wind load generated by the installation of banners on the poles. The poles for Project 2 shall be furnished with banner arms. The poles for Project 3 shall be furnished without banner arms.

The poles for Project 2 shall be furnished with GFI duplex receptacles. The poles for Project 3 shall be furnished without GFI duplex receptacles.

Project 2: The lighting unit shall be Sternberg Lighting part number 1-1914LEDF / A / 40L45T3-MDL21 / SPCA8 / HS-H(S) / 1-1912A5 / SPCA4 / HS-H(S) / 12L45T5-MDL14 / 9234ARTF(MOD) / 16FF / RCC / DBA / GFI-LPIUC / BKT as shown on the details in the plans.

Project 3: The lighting unit shall be Sternberg Lighting part number 1-1914LEDF / A / 40L45T3-MDL21 / SPCA8 / HS-H(S) / 1-1912A5 / SPCA4 / HS-H(S) / 12L45T5-MDL14 / 9234ARTF(MOD) / 16FF / RCC / BKT as shown on the details in the plans.

Pedestrian St Light

The poles shall be designed and manufactured to withstand the increased wind load generated by the installation of banners 18” wide by 36” high with a mounting height of 13’-0” to the bottom of the lower banner bracket. The Contractor or the pole manufacturer shall submit a letter signed and sealed by a structural engineer stating that the poles can withstand the increased wind load generated by the installation of banners on the poles.

The lighting unit shall be Sternberg Lighting part number 1-1912A5 / SPCA4 / HS-H(S) / 6216’6”ETFP6(MOD) / RCC / 12L45T5-MDL14 / DBA / GFI-LPIUC / BKT as shown on the details in the plans.

Ornamental Street Lighting Unit – Single Teardrop Fixture

The poles shall be designed and manufactured to withstand the increased wind load generated by the installation of banners 24” wide by 72” high with a mounting height of 16’-2” to the bottom of the lower banner bracket. The Contractor or the pole manufacturer shall submit a letter signed and sealed by a structural engineer stating that the poles can withstand the increased wind load generated by the installation of banners on the poles. The poles shall be furnished without banner arms.

The lighting unit shall be Sternberg Lighting part number 1-1914LEDF / A / 40L45T3-MDL21 / SPCA8 / HS-H(S) / 9234ARTF(MOD) / 16FF / RCC / BKT as shown on the details in the plans.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for ORNAMENTAL LIGHT UNIT, COMPLETE, PEDESTRIAN ST LIGHT, or ORNAMENTAL STREET LIGHTING UNIT – SINGLE TEARDROP FIXTURE, which prices shall include all labor, equipment, and material necessary to complete the work as specified.

X0327739 MISCELLANEOUS ELECTRICAL WORK

Description

This work shall consist of penetrating existing University of Illinois buildings for proposed fiber optic connections in accordance with University of Illinois at Urbana-Champaign Facilities Standard 27-00-00-04 “Telecomm. Typ. Underground Bldg. Entrances & Conduit Profiles”, the details in the plans, and the following additions.

Construction Requirements

The Contractor shall be required to coordinate all building penetrations with an authorized University of Illinois Representative (Owner) and the Engineer. The Contractor shall be responsible for obtaining the most recent standard drawings and details from the Owner prior to starting any work.

Where electrical conduits pass through concrete foundation walls, the end of the rigid steel conduit shall project inside of the building not less than 8-inches from the face of the wall as directed. All voids created by the conduit entrance shall be sealed to the satisfaction of the Owner.

Outdoor conduits entering the building shall have an upward slope. The exterior of the raceway shall be sealed at the foundation wall and the interior of the raceway shall also be sealed, with or without wiring installed. This is to prevent water from entering the building. The Contractor shall be responsible for any water damage to the existing building at his/her own expense.

The fiber optic connections located inside of University owned buildings will be performed by University of Illinois forces and the Contractor shall be required to subcontract this work with the Owner. The Contractor shall be responsible for the entire length of fiber optic cable from the MTD equipment location to the interior termination point. The required length of fiber optic cable will be provided to the Contractor by the Owner.

The Contractor shall coordinate this work with University of Illinois Technology Services assistant manager, Brian Cockerham. Office address is 2434 Digital Computer Lab, MC-256, 1304 West Springfield Avenue, Urbana, Illinois. Office phone is (217) 333-0547.

Measurement and Payment

This work will be measured and paid for at the contract lump sum price for MISCELLANEOUS ELECTRICAL WORK, which the price shall include all labor, equipment, material, coordination, and subcontracting necessary to complete the work as specified herein.

Fiber optic terminations inside the buildings will not be paid for separately. The University of Illinois Technology Services will provide the Contractor a written estimate which the Contractor shall reflect in his/her contract lump sum price for the said work. No additional compensation will be allowed.

X8040102 ELECTRIC SERVICE INSTALLATION, SPECIAL

Description

This work shall consist of installing an electric service installation in accordance with Section 804 of the Standard Specifications, the details in the plans, and the following additions or exceptions.

Materials

The Contractor shall provide a meter socket in accordance with Ameren Illinois requirements. Service size shall be as shown on the plans.

The Contractor shall provide a service disconnect switch in accordance with Article 1086.01 of the Standard Specifications and the details in the plans.

The Contractor shall be responsible for coordinating all requirements for the electric service installation with Ameren Illinois and shall adhere to latest standards as provided by Ameren Illinois.

The Contractor shall coordinate all requirements and fees for the electric service installation with Ameren Illinois. No additional compensation will be allowed for work required for the electric service or utility connection fees, even though not explicitly shown on the plans or specified herein.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for ELECTRIC SERVICE INSTALLATION, SPECIAL, which price shall include all labor, equipment, and material necessary to complete the work as specified, including the meter socket, service disconnect switch, ground rod, and other equipment required by the utility company. The service conduit and service conductors will be paid for separately.

X8130110 JUNCTION BOX (SPECIAL)

Description

This work shall consist of furnishing and installing a junction box in accordance with Section 815 of the Standard Specifications and the following additions or exceptions.

The junction box shall be composite concrete and manufactured by CDR Systems or approved equal. The junction box dimensions shall be 12"W x 12"L x 12"D with flared walls. The junction box cover shall be of the same material as the junction box. The junction box cover and collar shall be standard concrete grey color in sidewalks and shall be the manufacturer's dark green color in grass areas.

Junction boxes used for the roadway lighting system shall have the words "STREET LIGHTING" cast into the cover. Junction boxes used for the GFI type receptacles in planter areas shall have the word "ELECTRIC" cast into the cover. Junction boxes used for the communication system shall have the word "COMMUNICATIONS" cast into the cover.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for JUNCTION BOX (SPECIAL), which price shall include all labor, equipment, and material necessary to complete the work as specified.

X8130125 REMOVE EXISTING JUNCTION BOX

Description

This work shall consist of the removal and disposal of existing junction boxes in accordance with the applicable portions of Section 895 of the Standard Specifications and the following additions or exceptions.

The junction box shall be removed in its entirety. Portions of the existing cables and conduits that interfere in any way with the proposed construction shall be removed. Existing cables that do not interfere with the proposed construction shall be abandoned in place unless otherwise directed by the Engineer. Existing conduits that do not interfere with the proposed construction shall be capped and abandoned in place unless otherwise directed by the Engineer. Removal of the existing cables and conduits shall be included in the cost of Remove Existing Junction Box, and no additional compensation will be allowed.

Removed material shall be disposed of by the Contractor in accordance with Article 202.03 of the Standard Specifications.

Voids created by the removals shall be backfilled with controlled low-strength material unless otherwise directed by the Engineer. All required excavation and backfill shall be included in the cost of Remove Existing Junction Box.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for REMOVE EXISTING JUNCTION BOX, which price shall include all labor, equipment, and material necessary to complete the work as specified.

X8211000 UNDERPASS LUMINAIRE (SPECIAL)

Description

This work shall consist of furnishing and installing an underpass luminaire in accordance with Section 821 of the Standard Specifications, the details in the plans, and the following additions or exceptions.

The underpass luminaire shall be the CREE Edge Series LED Transportation Luminaire with Type IV medium distribution, backlight control, and 20 LEDs, CREE part number ARE-EDG-4MB-DM-02-E-UL-BK-350-40K. The luminaire shall have a black finish and back light shield kit. Luminaire shall have a structured LED array to provide 1,610 lumens at 4,000K and 350mA drive current. Distribution shall be Type 4 medium. Provide with direct mount and vibration isolation. Luminaire shall be suitable for use on a 240 volt system.

The underpass luminaire shall be mounted between the existing railroad bridge steel beams as shown on the Underpass Luminaire (Special) Mounting Detail in the plans. Furnishing and installing the materials required to mount the fixture as shown on the detail shall be included in the cost of the Underpass Luminaire (Special).

Measurement and Payment

This work will be measured and paid for at the contract unit price each for UNDERPASS LUMINAIRE (SPECIAL), which price shall include all labor, equipment, and material necessary to complete the work as specified, including all mounting materials and hardware.

X8250505 LIGHTING CONTROLLER, SPECIAL

Description

This work shall consist of furnishing and installing a lighting controller in accordance with Section 825 of the Standard Specifications, the details in the plans, and the following additions or exceptions.

Materials

The lighting controller cabinet shall be an aluminum cabinet, single door, painted black, in accordance with Article 1068.01 of the Standard Specifications, and of the size necessary to hold the proposed equipment as shown on the plans and as specified herein. The controller and cabinet shall be manufactured by Excel Ltd. using Square D parts unless otherwise specified. Provide a concrete Type D foundation for the lighting controller cabinet in accordance with Standard 878001 and Section 878 of the Standard Specifications. The integral color of the concrete foundation shall match the color of the adjacent proposed concrete sidewalk.

Provide all control components as shown on the plans and as specified herein.

Panelboard Interior: Provide panelboard interior with main breaker and bus ratings as shown in the plans. Panelboard interior shall have copper bus and shall be service entrance rated. Provide bolt on circuit breakers, quantity, rating, and number of poles as shown in the plans. Panelboard interior shall include an equipment ground bus, bonded to controller cabinet, and manufactured by Square D. HOPT Switch: Provide Hand-Off-Photocell-Timer switch in controller cabinet as shown in the plans. Switch shall be connected such that the lights are on in the "Hand" position, are off in the "Off" position, are controlled by the photocell in the "Photocell" position, and are controlled by the time clock in the "Timer" position.

Light, Switch, and GFCI: Provide a light fixture with clear globe and protective guard mounted from top of cabinet. Lamp shall be a 26 watt, spiral fluorescent lamp. Provide a 120VAC, 20A, single pole switch, plunger type, mounted such that it turns on the controller light when door is opened. Provide 120VAC, 20A, Ground Fault Circuit Interrupting duplex receptacle.

Photocell: Provide a photocell switch with locking type receptacle and integral surge arrestors. Provide brackets to mount the photocell in the controller cabinet as detailed in the plans. Provide shielding as detailed in the plans and a time delay relay to prevent nuisance switching.

Lighting Contactors: Provide quantity of lighting contactors as shown in the plans. Lighting contactors shall be a minimum of 4 pole, 30 amp, 240VAC with 120VAC electrically held coil, and manufactured by Square D.

Additional Lighting Contactors (Controller #119 only): Provide quantity of lighting contactors as shown in the plans. Lighting contactors shall be a minimum of 2 pole, 60 amp, 240VAC with 120VAC electrically held coil, and manufactured by Square D.

Receptacle Contactors (Controllers #117, #118, and #119 only): Provide quantity of receptacle contactors as shown in the plans. Receptacle contactors shall be a minimum of 10 pole, 30 amp, 240VAC with 120VAC electrically held coil, and manufactured by Square D.

Surge Arrestor: Provide surge arrestor capable to withstand a surge current up to 20,000A (8 x 20 microseconds) and repetitive surges of 200A for minimum of 10,000 occurrences. Response time shall be less than 50 nanoseconds. Current draw shall be less than 100 microamperes. Surge arrestor leads shall not be spliced and shall be as short as possible.

Astronomical Clock: The timer shall be an Intermatic #ET8215CPD82 type timer with non-volatile EEPROM memory backup.

Terminal Strips: Provide terminal strips as shown on the plans for all incoming wiring. Quantity of terminals shall be such that there is a minimum of 100% spare terminals. Provide separate terminal strips for power, neutral, and ground wiring as required.

Terminal Block: Provide separate terminal block for control wiring.

All equipment listed herein and shown on the plans shall be mounted to a steel installation mounting plate to be installed in the controller cabinet.

Provide all wiring required in the controller cabinet to connect the control components as indicated in the plans. All wiring in the controller cabinet shall be neatly trained and bundled. All wiring shall be clearly marked at each termination.

The controller cabinet shall contain an engraved laminated plastic nameplate with the following message: "CAUTION – TRAFFIC SIGNAL MAST ARM POLES HAVE TWO SOURCES OF POWER. TRAFFIC SIGNALS ON TRAFFIC SIGNAL MAST ARM POLES ARE FED FROM THE TRAFFIC SIGNAL CONTROLLER CABINET." The nameplate shall be red with white letters, and the letters shall be ¼" high. The nameplate shall be mounted with corrosion-resistant screws in a prominent location inside the controller cabinet.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for LIGHTING CONTROLLER, SPECIAL, which price shall include all labor, equipment, and material necessary to complete the work as specified, including the controller cabinet and concrete foundation, all control components shown in the plans and specified above, all interconnecting wiring, and installation.

X8410151 TEMPORARY LIGHTING SYSTEM, LOCATION 1
X8410152 TEMPORARY LIGHTING SYSTEM, LOCATION 2
X8410153 TEMPORARY LIGHTING SYSTEM, LOCATION 3

Description

This work shall consist of furnishing, installing, operating, inspecting, maintaining, and removing all materials and equipment required for the temporary lighting systems as shown in the plans and as directed by the Engineer.

Temporary Lighting System, Location 1 shall be installed for Stage 1 construction on First Street. Temporary Lighting System, Location 2 shall be installed for Stage 2 construction on Green Street. Temporary Lighting System, Location 3 shall be installed for Stage 3 construction on Green Street. Refer to the traffic control plans and specifications for additional information.

The work required for each temporary lighting system shall be performed as shown in the plans and as directed by the Engineer. All coordination required with the City of Champaign and Ameren Illinois shall be included in the cost of the Temporary Lighting System.

All materials, equipment, and fees required for the temporary service installation shall be included in the cost of the Temporary Lighting System.

The temporary lighting system for each stage shall be installed and operational prior to removal of the existing lighting within each stage unless otherwise directed by the Engineer. The temporary lighting system for each stage shall not be removed until the permanent lighting system within each stage is installed and operational unless otherwise directed by the Engineer.

Voids created by the removals shall be backfilled with controlled low-strength material unless otherwise directed by the Engineer. All required excavation and backfill shall be included in the cost of the Temporary Lighting System.

The Contractor shall use luminaires for the temporary lighting system that meet the requirements listed in the plans. The Contractor shall turn over the luminaires from the temporary lighting system to the City of Champaign once all permanent lighting systems are installed and operational unless otherwise directed by the Engineer.

Measurement and Payment

This work will be measured and paid for at the contract lump sum price for TEMPORARY LIGHTING SYSTEM, LOCATION 1, TEMPORARY LIGHTING SYSTEM, LOCATION 2, or TEMPORARY LIGHTING SYSTEM, LOCATION 3, which prices shall include all labor, equipment, and material necessary to complete the work as specified. Individual items will not be paid for separately. Removal of the temporary lighting system will not be paid for separately.

X8710012 FIBER OPTIC CABLE IN CONDUIT (INSTALL ONLY)

Description

This work shall consist of installing fiber optic cable in accordance with Section 871 of the Standard Specifications, the requirements of ITV3, the details in the plans, and the following additions or exceptions.

The fiber optic cable and connectors will be provided by ITV3. All coordination required with ITV3 for this work will not be paid for separately but shall be included in the cost of installing the fiber optic cable.

The Contractor shall install the fiber optic cable in a continuous, unbroken run between the information kiosk and the handhole furnished and installed by ITV3 at each location shown on the plans. The Contractor shall coil extra fiber optic cable in each handhole and kiosk base along the conduit run as required by ITV3.

The Contractor shall terminate the fiber optic cable at each information kiosk using connectors provided by ITV3. All cable terminations and connections necessary for this work will not be paid for separately but shall be included in the cost of installing the fiber optic cable.

The Contractor shall be responsible for a complete working installation, including all necessary testing, to the satisfaction of the Engineer.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot for FIBER OPTIC CABLE IN CONDUIT (INSTALL ONLY), which price shall include all labor, equipment, coordination, testing, and material necessary to complete the work as specified. The installed fiber optic cable will be measured for payment in straight lines along the centerline of the conduit between kiosks, junction boxes, and changes in direction. Vertical cable and extra cable will not be measured for payment.

XX003614 RECEPTACLE (GFI TYPE) WITH WEATHERPROOF COVER

Description

This work shall consist of furnishing and installing a GFI type receptacle in a weatherproof pedestal type enclosure with a hinged top weatherproof cover in accordance with the detail in the plans, as specified herein, and as directed by the Engineer.

The receptacle assemblies shall be installed in planter areas as shown in the plans.

The GFI type receptacle shall be housed in a U.L. listed, NEMA 3R, 14 ga. stainless steel, black powder coated, direct bury type enclosure. The overall width including cover shall be 6.13” and the depth shall be 2.75”. The length of the enclosure shall be 42”. The integral hinged cover shall be self-closing and lockable whether in use or not. The unit shall be provided with a ground conductor terminal. The unit shall be Pedoc model #142-C-HT-B or approved equal.

Conduit for the receptacle shall be 1” rigid galvanized steel (RGS) as shown on the detail in the plans. The RGS conduit shall be extended to the junction box designated for the planter receptacle circuit.

Wiring for the receptacle shall include three 1/C #12 cables in accordance with the specification for ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 1/C. The wiring shall be extended to the junction box designated for the planter receptacle circuit.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for RECEPTACLE (GFI TYPE) WITH WEATHERPROOF COVER, which price shall include all labor, equipment, and material necessary to complete the work as specified, including the GFI type receptacle, weatherproof enclosure with integral weatherproof cover, RGS conduit, electric cables, and mounting hardware.

XX007797 LUMINAIRE (SPECIAL)

Description

This work shall consist of furnishing and installing a luminaire in accordance with Section 821 of the Standard Specifications, the details in the plans, and the following additions or exceptions.

Materials

The luminaire shall be the 1914 LED Libertyville Series manufactured by Sternberg Lighting, part number 1914LEDF / A / 40L45T3-MDL21 / HS-H(S) / BKT. The luminaire shall meet the requirements shown in the plans. The luminaire shall have a factory applied powder coating, black in color. The finish and warranty requirements for the luminaire shall be in accordance with the technical specification for Ornamental Light Unit, Complete.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for LUMINAIRE (SPECIAL), which price shall include all labor, equipment, and material necessary to complete the work as specified.

FIBER OPTIC CABLE IN CONDUIT, SPECIAL

Description

This work shall be performed in accordance with Section 871 of the Standard Specifications and the following additions or exceptions.

Fiber Optic Indoor/Outdoor Cable

The multi-mode in-building fiber optic cable shall consist of 50/125 micron laser optimized fiber optimized for 850/1300 nanometer operation manufactured by Corning Cable Systems. It is designed for high performance laser-based 10 Gigabit Ethernet. It has an engineered loss of 3.0 db/KM at 850 nanometer operation with a bandwidth of 1500 MHz and 1.5 db/KM at 1300 nanometer operation with a bandwidth of 500 MHz. The minimum effective modal bandwidth is 2000 MHz. The specifications represent a FREEDM One Cable with a NEC rated CM flame retardant, UV-resistant, indoor/outdoor cables designed for aerial, duct and direct-buried applications with no need for a transition splice when entering the building. . Substitutions will not be allowed.

The single mode in-building fiber optic cable shall be manufactured by Corning Cable Systems. The specifications represent a gel free, MIC cable, with a NEC rated CM flame retardant sheath designed for riser applications. It has an engineered loss of 1/.75 db/KM for 1310/1550 nanometer operation. Substitutions will not be allowed.

Plastic wire ties shall not be used with fiber optic cable. Velcro wire wraps shall be used to prevent excessive crimping of the fiber.

All fiber runs shall be continuous without splices between termination sites. Each fiber run shall be terminated at the MTD-owned information kiosk and the interior of the University-owned building. A separate fiber run shall be provided for each information kiosk.

The Contractor shall coordinate this work with University of Illinois Technology Services assistant manager, Brian Cockerham. Office address is 2434 Digital Computer Lab, MC-256, 1304 W. Springfield Avenue, Urbana, Illinois. Office phone is (217) 333-0547 or private utilities depending on the location.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot for FIBER OPTIC CABLE IN CONDUIT, SPECIAL, which price shall include all labor, equipment, material, and coordination necessary to complete the work as specified.

WATER MAIN SPECIFICATIONS

ILAWC SECTION 01300 – SUBMITTALS

PART 1: GENERAL

1.01 CONSTRUCTION SCHEDULE

- A. Prepare and submit detailed progress schedules, schedule of values and shop drawing and sample submittal schedules to the Engineer for approval in accordance with Paragraphs 2.06 of the General Conditions. The schedule shall be in bar graph form and shall include, as a minimum, the following separate activities:
1. Physical construction (identifying mobilization, demobilization, setup time, lags, etc.).
 2. Issuance by Contractor of purchase orders for material and equipment and submittal of shop drawings and samples to the Engineer.
 3. Review by Engineer for each submittal of samples and shop drawings. Unless otherwise approved by the Engineer, allow ten (10) working days for Engineer to review each submittal.
 4. Fabrication time for materials and equipment.
 5. Delivery of materials and equipment.
 6. Installation of materials and equipment.
 7. Testing, start-up and training for individual pieces of equipment or entire systems as appropriate.
 8. Weather affected activities.
 9. Outages or interruptions of Owner's facilities required to perform work.
 10. Demolition or removal work under this Contract.
- B. Activity durations shall represent the best estimate of elapsed time considering the scope of the Work involved in the activity and the resources planned for accomplishing the activity expressed in working days.
- C. Activity descriptions shall clearly define the scope of work associated with each activity.
- D. Detail the construction work schedule to an extent that progress can be readily monitored on a weekly basis. In general, the construction work shall be detailed such that no construction activity shall have duration greater than fifteen (15) work days. As a minimum, each activity shall be coded by:
1. Activity type (i.e., submittal, Engineer's review, material order material delivery, pilot hole drilling, well testing, development, etc.).

2. Responsibility (i.e., Contractor, subcontractor A, subcontractor B, Owner, Engineer, etc.).
 3. Area (i.e., Pilot Wells, Production Wells, sitework, etc.).
- E. Develop the construction schedule as necessary to properly control and manage the project. The above schedule development requirements are a minimum.
- F. The preliminary progress schedule shall be submitted in a bar graph format and shall include, as a minimum, a graphic representation of all significant activities and events involved in the construction of the project. The graphic representation and statement must clearly depict and describe the sequence of activities planned by the Contractor, their interdependence and the times estimated to perform each activity.

1.02 FINALIZING SCHEDULES

- A. Prepare to present and discuss at the preconstruction meeting, the schedules submitted in accordance with this specification. Unless additional information is required to be submitted by the Contractor, the Engineer will, within 15 working days of the preconstruction conference, provide comments to the Contractor. Then resubmit the affected schedules addressing the Engineer's comments.
- B. Approval of the final schedules by the Engineer is advisory only and shall not relieve the Contractor of responsibility for accomplishing the work within the Contract Times. Omissions and errors in the approved schedule shall not excuse performance less than that required by the Contract. Approval by the Engineer in no way makes the Engineer an insurer of the success of those schedules or liable for time or cost overruns flowing from shortcomings in such schedules.

1.03 REQUIREMENTS FOR CONFORMING TO SCHEDULE

- A. Take such steps as will be necessary to improve progress, if, in the opinion of the Engineer, the Contractor falls behind the progress schedule. Engineer may require Contractor to increase the number of shifts and/or overtime operations, days of work, and/or the amount of construction planned, and to submit for approval such supplementary schedule or schedules as may be deemed necessary to demonstrate the manner in which the agreed rate of progress will be regained, all without additional cost to the Owner. An updated cash flow schedule will be required in this occurrence and will be provided with the supplementary schedules referenced above.

1.04 UPDATING SCHEDULES

- A. Submit to the Engineer monthly updates of the schedules required per this specification section. Be prepared to discuss the monthly update and the subsequent

monthly job meeting if such meetings are to be held.

- B. Progress and shop drawing schedule updates shall reflect the progress to date by providing actual start dates for activities started, actual finish dates for completed activities, and identifying out of sequence work, schedule logic changes and any circumstances or events impacting the current schedule. The updates shall also contain the Contractor's best estimate of the remaining duration for activities not complete as of the date of the update. All graphic presentations and other information required per the initial submittal of these schedules shall be provided with each update.
- C. The cash flow schedules shall be updated to reflect any changes.

1.05 ADJUSTMENT OF PROGRESS SCHEDULE AND CONTRACT TIMES

- A. If the Contractor desires to make changes in the method of operating which affect the approved progress schedule, notify the Engineer in writing stating what changes are proposed and the reason for the change. If the Engineer approves these changes, revise and submit for approval, without additional cost to the Owner, all of the affected portions of the schedule.
- B. Shop drawings and samples which are not approved on the first submittal or within the schedule time shall be immediately rescheduled, as well as any work which fails to pass specified tests or has been rejected.
- C. The Contract Times will be adjusted only for causes specified in the General Conditions. In the event the Contractor requests an adjustment of the Contract times, furnish such justification and supporting evidence as the Engineer may deem necessary for a determination as to whether the Contractor is entitled to an adjustment of Contract Times under the provisions of the General Conditions. The Engineer will, after receipt of such justification and supporting evidence, make findings of fact and will advise the Contractor in writing. If the Engineer finds that the Contractor is entitled to any adjustment of the Contract Times, the Engineer's determination as to the total number of days adjustment shall be based upon the currently approved progress schedule and on all data relevant to the adjustment. The Contractor acknowledges and agrees that actual delays in activities which, according to the progress schedule, do not affect the Contract completion date shown by the critical path in the schedule will not be the basis for an adjustment of Contract Times.
- D. From time to time it may be necessary for the progress schedule and/or Contract Times to be adjusted by the Owner to reflect the effects of job conditions, weather, technical difficulties, strikes, unavoidable delays on the part of the Owner, and other unforeseeable conditions which may indicate schedule and/or Contract Times

adjustments. Under such conditions, the Engineer shall direct the Contractor to reschedule the work and/or Contract Time to reflect the changed conditions. Revise the construction schedule accordingly. No additional compensation shall be made to the Contractor for such changes except as provided in the General Conditions. Unless otherwise directed, take all possible actions to minimize any extension to the Contract Times and any additional cost to the Owner.

1.06 CASH FLOW SCHEDULE

- A. In addition to the Construction Schedule required above, submit to the Engineer, for approval, a Cash Flow Schedule. The Cash Flow Schedule shall show the amounts of money by months, which will be required to reimburse the Contractor for Work performed during each month of the Contract Time. The sum of all the monthly cash requirements shall equal the total price of the Contract. The monthly cash requirements shall be proportioned with the aid of the Construction Schedule.
- B. The approved Cash Flow Schedule will be used by the Owner to program funds for progress payments to the Contractor. Monthly payments will be made to the Contractor in accordance with the Contract Agreement, but at no time will the aggregate amount of payments exceed the accumulated amount of payments for the same period of the Cash Flow Schedule.

1.07 SHOP DRAWINGS

- A. Promptly supply to the Engineer for approval, shop drawings with details and schedules for all items as noted in the Drawings and/or Specifications and/or required by the Engineer. Submittals are required for all equipment and materials to be installed on the job.
- B. Five (5) copies of all drawings, schedules and brochures shall be submitted for approval. Black line prints, blue line prints or reproducible transparencies are required. Blueprints (white lines on a blue background) are not acceptable. Each submittal shall have the job name on it.
- C. Submittals smaller than 8-1/2 by 11 inches shall be secured to paper 8-1/2 by 11 inches.

1.08 SAMPLES

- A. When required by the Engineer or where noted in other Sections of these Specifications, samples of materials shall be submitted for approval.

1.09 PRE-CONSTRUCTION VIDEO/ELECTRONIC PHOTOS

- A. Prior to mobilization at the site, furnish to the Engineer two copies of a video recording of all planned construction areas, material storage areas, areas adjacent to these areas, including but not limited to, streets, driveways, sidewalks, curbs, ditches, fencing, railing, visible utilities, retaining structures and adjacent building structures. One copy shall be on DVD and one on a flash drive. The purpose of the video is to document existing conditions and to provide a fair measure of required restoration. Care should be taken to record all existing conditions which exhibit deterioration, imperfections, structural failures or situations that would be considered substandard. Notify the Engineer when the video is to be taken to provide the Engineer an option to be on site during the documenting of the project area.
- B. The video shall be high quality, color and in an approved electronic format. Temporary lighting shall be provided as necessary to properly video areas where natural lighting is insufficient (indoors, shadows, etc.). The video shall include an audio soundtrack to provide the following information:
1. Detailed description of location being viewed referenced to Contract Drawings (i.e., well location, building designation, pipeline route etc.)
 2. Direction (N, S, E, W, looking up, looking down, etc.) of camera view
 3. Date, time, temperature, environmental conditions during recording.

Where required by Engineer, electronic photographs of specific locations shall be provided to supplement the electronic video.

- C. Any areas not readily visible by video/photo methods shall be described in detail. Unless otherwise approved by Engineer, video shall not be performed during inclement weather or when the ground is covered partially or totally with snow, ice, leaves, etc.
- D. As many recordings or photos as are necessary to satisfy the requirements of this section shall be prepared. The original documents shall be submitted to the Engineer accompanied by a detailed log of the contents of each DVD. The log should include location descriptions with corresponding file name to facilitate the quick location of information contained on the DVDs. The DVDs will be maintained by the Engineer during construction and may be viewed at any time by Contractor upon request. Upon final acceptance, the DVDs will become the permanent property of the Owner.

1.10 PROGRESS PAYMENTS

- A. The detailed arrangement for submittal of progress payments shall be discussed at the preconstruction meeting. In general, progress payments shall be submitted monthly

in a format acceptable to the Engineer. The progress payment request shall be based on the unit prices and should provide the percentage of completion, total dollar value completed, dollar value completed prior to the current payment, and the amount requested for this progress payment for each line item contained in the schedule of values. Progress payment requests for material and/or equipment suitably stored but not yet incorporated into the work shall be accompanied by a copy of the appropriate manufacturers invoice, shipping order, bill of lading, etc. and the progress payment amount shall be the direct cost to the Contractor, or subcontractor, for such material and/or equipment. Payment will not be made to the Contractor if, upon inspection by the Engineer, it is determined that the material and/or equipment does not conform to the requirements of the Contract Documents including proper storage, receipt of approved shop drawings, receipt of any special guarantees, Bonds, insurance coverage, any evidence of damage or imperfections, etc.

1.11 CONTRACTOR'S DAILY REPORTS

- A. If requested by the Engineer or the Resident Project Representative, prepare and submit daily reports containing the following information:
 - 1. The number of craftsmen and hours worked of each subcontractor,
 - 2. The number of hours worked by each trade,
 - 3. The number of hours worked of each type of equipment,
 - 4. A description of work activities performed,
 - 5. A description of any material or equipment deliveries,
 - 6. Description of obstructions encountered,
 - 7. The temperature and weather conditions.
 - 8. Downtime due to equipment failure.
 - 9. Detail cause for work delays.
- B. The daily reports shall be submitted on a daily basis, by the end of the next business day.
- C. Information provided on the daily report shall not constitute notice of delay or any other notice required by the Contract Documents. Notice shall be as required therein.

1.12 OPERATING AND MAINTENANCE INSTRUCTION MANUALS

- A. Prepare complete written maintenance and operating instructions covering any equipment provided under this Contract. Divide the operating instructions into basic sections according to type of equipment.
- B. Instructions shall describe all equipment and controls, their purpose, and their operation and use. Include maintenance checklists for use by the Owner's personnel

and a complete listing of replacement parts with pertinent information relative to ordering such parts.

- C. Submit instructions in duplicate draft form for review by the Engineer at least eight weeks prior to initial operation and in final form within thirty days after return of one copy of the draft with the Engineer's notations.
- D. Prior to release of Final Payments, revise and resubmit copies of the instructions to accord with any changes in procedures or equipment made during start-up or initial operation. Resubmittals are also required for changes made during the guarantee period.

1.13 REQUIREMENTS FOR AMERICAN WATER ASSET VALUES

- A. Provide a breakdown of the contract amount by Property Units in accordance with the list of Property Units that can be provided as requested. This process requires that the contractor assign the full cost of the project to lengths of pipe (by material and size), length of services (by material and size), hydrants, valves (by size), manholes and other fixtures (air relief valves, blowoffs, etc.) in the project. The submission must be approved by the Engineer to verify that the breakdown is realistic and reflects submitted contract unit prices.

1.14 AS BUILTS

Where identified as a product of the work, provide as built drawings adhering to the criteria provided here and that found in the special conditions.

- A. Templates - All measurements and information shall be recorded on templates provided. No other backgrounds, templates nor formats will be accepted for the As-Built submission.
- B. Recording the Information - Provide the Record As-Built information in both 'Electronic and Hard' copy mediums, with the exception of the Field Sketches. The Field Sketches are not required to be in the electronic format. The electronic medium format shall be in AutoCAD 2000 or later. The base drawing shall be drawn in Model Space at a scale of 1 to 1, in real world coordinates and all plotting, labeling and dimensioning shall be drawn from Paper Space. Templates shall not be modified or resized due to Optical Scanning requirements. The layering convention and color scheme shall follow the samples provided.
- C. Coordinates – Provide the required survey coordinates in the State Plane Coordinate System unless otherwise noted. The drawing features included shall be as noted below (See 'Pipeline As-Built Drawing Procedure').

- D. Submitting the Information - When the Record information is ready, submit 'Hard' copies of all the information, including sketches to the Engineer for approval. The electronic information shall be burned on a CD (CD-RW). The CD shall have an all white label with the following information on the upper half of the label in Arial 12 font:

Illinois American Water, Champaign District,
Small Main Replacement
201 Devonshire Drive, Champaign, IL. 61820

- E. The Information Process - The Engineer will approve the submission or 'red line' any information needing to be corrected or added, and return it for resubmission. When the submittal is approved by the Engineer, provide two CD-RW's each containing all approved Record As-Built information in a clear face hard plastic CD jacket and one hard copy of all approved Record As-Built information (binder clipped together, not bound)

Initial submission must be provided within (14) calendar days of the 'Construction Completion' date, not including the restoration work. The Engineer will return the submission within (7) calendar days of receipt. The approved final submission must be provided within twenty-eight (28) calendar days from the 'Construction Completion' date, not including the restoration work.

- F. General information required - At a minimum, all As-Built record drawings shall contain the following information:

1. North Arrow with North at the top of the drawing
2. Face of curb lines, easement lines, edge of pavement (EOP) or right-of-way lines
3. Business Unit (BU) Number (data provided by Engineer)
4. Plate Map number (data provided by Engineer)
5. All objects located shall be referenced to other objects with (3) perpendicular measurements. All such measurements shall be from permanent existing structures, such as catch basins, manholes, buildings, etc. (no utility poles)
6. The proposed pipeline 'line' designation shall be shown in bold or heavier line style per template and sample.

- G. Pipeline information required - At a minimum, all As-Built record drawings shall contain the following information:

1. Title Block Information completed (note, any street with work performed in it must have its name included in the title block)

2. Each drawing shall include only the work along one street block (transmission mains excluded). And include the intersecting street corners with the distance to the center line of each intersection. Include Match Lines if multiple drawings are required.
 3. If more than one drawing is required, include an overall site plan of the whole project with a drawing key
 4. Pipe diameter and material
 5. Bill of Materials with arrow identifying where installed
 6. Date the water main was put 'In-service' (data provided by Engineer)
 7. Include valve, hydrant and tap/service identifying numbers for each (data provided by Engineer)
 8. Reference the Point of Connection where the new main pipeline connects to existing Owner facilities and provide dimensions to nearest existing appurtenance
 9. If project continues from an existing stub, a dimension from the center line of the nearest street intersection and existing line valve shall be included. Provide coordinates for the referenced existing valve.
 10. If the project is a continuation of a previous project, reference the previous project reference number
 11. All Valves, tees, horizontal/vertical bends, and the start and end of the new water main shall be located with coordinates in the specified format.
 12. All connections, wet cuts and fittings not required to have coordinates shall be dimensionally located
 13. Indicate abandoned pipe with type of material and length (if applicable)
 14. Indicate and locate buried valves (if applicable) with coordinates in the specified format.
 15. Provide measurement from face of curb or edge of pavement at every 250 foot maximum along the pipeline
 16. At abrupt changes in pipe elevation, provide a referenced drawing showing the profile of the work and list the material used
 17. Provide the depth from finish grade to top of pipe every 100 lf, and at the start and end of the new water main
 18. Name of Contractor and Construction Inspector (full last name) on the project (locate in title block)
- H. Transmission Pipeline Information - Transmission Mains are typically 16" in diameter and larger; however, the Engineer may classify some 12" diameter pipe projects as a transmission main. Transmission main as-built drawings shall include all relevant information noted above and the following:
1. Title Sheet to include at a minimum:
 - a. American Water District & Project name

- b. Project Business Unit Number (data provided by Engineer)
 - c. Design Consultant Engineering Company name
 - d. Project date
 - e. County and Town
 - f. List of drawings
 - g. Drawing key with corresponding drawing reference
2. Include both Pipeline plan and profile views, and include both on the same sheet. Provide a detail sheet copying all valve cards (data provided by Engineer) listed those included and not included on the plan/profile sheets
 3. Include drawing details of all interconnections
 4. Provide the Manufacturer data for the pipe, fittings and appurtenances on the drawings
 5. Show and identify all restraint locations
 6. Include valves, bends, tees, and top of main elevation every 300 foot maximum with coordinates in the specified format.
- I. Connection (Tap and Service) Drawing Information - Service drawings are required where services currently do not exist. This drawing can be incorporated into the Pipeline Drawing noted above. Service drawings shall be on the 11" x 17" template. The drawing shall contain the general information above and the following additional information:
1. Title Block information completed
 2. Every service connection, service valve or curb stop, if installed, shall be located dimensionally with separate measurements for both the corporation and curb/meter box
 3. Valves shall be located with coordinates in the format specified
 4. Identify the main pipeline size, type and location from nearest face of curb or edge of pavement
 5. Tap number and house address shall be clearly shown at each location
 6. Show the size, length and service material
 7. Match lines and/or drawing key if more than one sheet
- J. Field Sketches - Some items installed required separate detailed field sketches. This includes the following
1. Valves (including Valves for Blow-offs) - Valve location measurements and information shall be shown on an 8½" x 11" sketch. Separate sketches are required for each valve, regardless of their proximity to each other. The sketch should be an enlarged and more detailed version of what is depicted on the Pipeline drawing. Any 'Blow-offs' installed with the work shall be

shown in detail on a Valve sketch with the same level of information as a valve. At a minimum, all Valve sketches shall contain the following:

- a. Manufacturer, type, open direction and number of turns (confirm open direction upon delivery)
 - b. Main Pipeline type and size
 - c. Valves and Blow-off's shall be located with NJSPCS NAD 83 coordinates
 - d. Valve identifying number (data provided by Engineer)
 - e. Identify other valves, hydrants, fittings and blow-offs within the immediate vicinity
 - f. Identify permanent existing structures
 - g. At least (3) tie down measurements to valve from permanent existing structures including catch basins, manholes, buildings, curbs, etc. (no utility poles)
2. Hydrant - Submit hydrant location measurements and information on an 8½" x 11" sketch. Each 'hydrant' shall have a separate sketch. The sketch should be an enlarged and more detailed version of what is depicted on the Pipeline drawing. At a minimum, all Hydrant sketches shall contain the following:
- a. Manufacturer and hydrant number (data provided by Engineer)
 - b. Bill of Material
 - c. Hydrant valves shall be located with NJSPCS NAD 83 coordinate
 - d. Record flow test results on sketch. If no test was required record static pressure (data provided by Engineer)
 - e. Main Pipeline and lateral type and size
 - f. Identify other valves, hydrants, fittings and blow-offs within the vicinity
 - g. Identify permanent existing structures
 - h. If an existing hydrant was relocated, reference the old hydrant number and its BU (data provided by Engineer)
3. Tap (Service Connections Installed) -Tap location measurements and information shall be shown on an 8½" x 11" sketch. Each 'service' shall have a separate Tap sketch. The sketch should be an enlarged and more detailed version of what is depicted on the Pipeline drawing / Service drawing. At a minimum, all Tap sketches shall contain the following:
- a. Locate dimensionally the identified Service/Tap
 - b. Sketch shall be oriented with the building receiving the service at the top of the sketch.

- c. Locate dimensionally the tapped water main from nearest face of curb or EOP
- d. Locate dimensionally the curb/meter box from nearest curb or EOP
- e. Tap identifying number (data provided by Engineer)
- f. House address number and Lot & Block number when applicable (data provided by Engineer)
- g. Length of 'Service'
- h. Valve ID Number (data provided by Engineer)
- i. Valves shall be located with NJSPCS NAD 83 coordinates
- j. Service to Service dimensions if less than 100 feet
- k. Identify anything that is underground within (6) feet of the service tap (i.e. blow-offs, chlorine tap, electric, gas, etc.)
- l. Separate measurements for both the corporation and curb/meter box
- m. At least (3) tie down measurements to curb/meter box from permanent existing structures including catch basins, manholes, buildings, curbs, etc. (no utility poles)
- n. When a service is renewed, the sketch should be labeled "Renew and Increase" and the customer's size and type of material should be recorded
- o. Bill of Material used
- p. Depth of service at curb

PART 2: PRODUCTS

2.01 TESTING DATA CERTIFICATES

- A. Product testing shall comply with all respective AWWA standards. The certificates of compliance shall be electronically scanned and submitted by E-mail to the Engineer or by submitting the hard copy originals to the Engineer.

PART 3: EXECUTION - Not Used.

END OF SECTION

ILAWC SECTION 02020 - DEWATERING

PART 1: GENERAL

1.01 GENERAL

- A. Should water be encountered, furnish and operate pumping equipment of sufficient capacity to dewater the trench. Dewater the trench so that the laying and joining of the pipe is made in a dry environment so as to prevent water from entering the pipe during construction.
- B. No additional sum will be allowed for any reasonably anticipated dewatering operation, overtime, equipment rental or any other expense incurred due to the occurrence of ground water, surface water or water from possible leakage of existing buildings, structures and piping in the vicinity of the Contractor's operations. If Contractor believes unreasonable, unanticipated wet conditions exist, immediately contact Engineer to decide appropriate measures and to determine whether Contractor is entitled to additional compensation.
- C. Convey all trench water to a natural drainage channel or storm sewer without causing any property damage. Discharge shall be in strict accordance with state and/or local requirements.
- D. Dispose of silt and debris which accumulates during construction in strict accordance with state and/or local requirements.

1.02 PERMITS

- A. The Contractor shall obtain and pay for any permits required for dewatering and disposal.

PART 2: PRODUCTS Not Used

PART 3: EXECUTION Not Used

END OF SECTION

ILAWC SECTION 02220 - STEEL CASING INSTALLATION

PART 1: GENERAL

1.01 GENERAL REQUIREMENTS

- A. The installation of casing pipe shall conform to these Specifications and any Federal, State or local Highway requirements or applicable Railroad requirements whichever may be more restrictive.

1.02 SUBMITTALS

- A. Submit details of proposed jacking or boring pits to the Engineer showing locations, dimensions, and details of sheeting and shoring required, if requested.

PART 2: PRODUCTS

2.01 MATERIAL

- A. Casing pipe shall be bare wall steel pipe with a minimum yield strength of 35,000 psi and a minimum wall thickness as listed below:

Casing Outside Diameter <u>Inches</u>	Highway Crossings Casing Wall Thickness <u>Inches</u>	Railroad Crossings Casing Wall Thickness <u>Inches</u>
8.625	0.250	0.250
10.75	0.250	0.250
12.75	0.250	0.250
14	0.250	0.281
16	0.250	0.281
18	0.250	0.312
20	0.312	0.344
24	0.312	0.406
30	0.375	0.469
36	0.500	0.532
42	0.500	0.563
48	0.625	0.625
54	0.625	0.688
60	0.625	0.750
66	0.625	0.813
72	0.750	0.875

Smooth wall steel plates with a nominal diameter of over 54 inches shall not be permitted.

The inside diameter of the casing pipe shall be: at least four (4) inches greater than the outside diameter of the carrier pipe joints or couplings for carrier pipe less than six (6) inches in diameter; and at least six (6) inches greater than the outside diameter of the carrier pipe joints or couplings for carrier pipe six (6) inches and greater in diameter.

PART 3: EXECUTION

3.01 ALIGNMENT AND GRADE

- A. Locate pipelines to cross roadways or tracks at approximately right angles where practicable, but preferably at not less than 45 degrees. Do not place pipelines in culverts or under bridges where there is a likelihood of their restricting the area required for the purposes for which the bridges or culverts were built, or of endangering the foundations. Install the casing pipe on an even grade for its entire length and sloped to one end or as noted in a profile plan if provided. Satisfy a maximum tolerance of 1.5% (18" in one hundred feet) with the desired location of the casing or as otherwise required by regulation or specified on the plans, whichever is more restrictive.

3.02 WELDING

- A. Connect steel casing sections by welding. Welding shall conform to AWWA Standard C206.

3.03 PROTECTION AT ENDS OF CASING

- A. Block up both ends of casings in such a way as to prevent the entrance of foreign material, but to allow leakage to pass in the event of a carrier break.

3.04 DEPTH OF INSTALLATION

- A. Unless the depth of casing pipe is specifically specified on the drawings, the casing pipe depth shall be in accordance with highway or railroad requirements.

3.05 CASING INSULATORS

- A. The carrier pipe and casing shall be separated by an insulator. The insulator spacing shall be installed to support the weight of the pipe and contents. As a minimum, an insulator shall be placed a maximum of 3 foot from each side of a joint and evenly spaced along the carrier pipe with 3 insulators per each length of carrier pipe. Timber skids are not allowed. Casing insulators shall be sized according to the manufactures specifications for pipe sizes from the following list of approved manufactures and

casing types.

1. Cascade Water Works Manufacturing Company (Stainless Steel only).
 2. Pipeline Seal and Insulator, Inc. (Carbon Steel with polyvinyl chloride or the Ranger II model).
 3. Advanced Products and Systems, Inc. (Model SI).
 4. Power Seal Pipeline Products Corp. (Model 4810).
 5. RACI (polyethylene model F-60 for 12-inch carrier pipe and smaller).
RACI shall not be used for carrier pipe larger than 12-inch.
- B. At the sole discretion of the Engineer, alternate manufactures in lieu of those described above and new or improved products by the same manufactures may be permitted. To seek approval, adequately describe any proposed alternate product and submit the same with shop drawings and specifications to the Engineer. The Contractor cannot proceed to employ said alternate products prior to receiving written approval from the Engineer.

3.06 INSTALLATION

- A. Refer to Standard Detail in the drawings for a typical casing installation detail. Install casing pipes by one of the following methods:
1. Jacking
This method shall be in accordance with the current American Railway Engineering Association Specifications, Chapter 1, Part 4, "Jacking Culvert Pipe Through Fills", except that steel pipe shall be used with welded joints. Conduct this operation without hand mining ahead of the pipe and without the use of any type of boring, auguring or drilling equipment. Design the bracing, backstops, and jacks so that the jacking can progress without stoppage (except for adding lengths of pipe).
 2. Drilling
This method employs the use of an oil field type rock roller bit, or a plate bit made up of individual roller cutter units, welded to the pipe casing being installed. Turn the pipe for its entire length from the drilling machine to the head to give the bit the necessary cutting action against the ground being drilled. Inject high density slurry (oil field drilling mud) through a supply line to the head to act as a cutter lubricant. Inject this slurry at the rear of the cutter units to prevent any jetting action ahead of the pipe. Advance the drilling machine on a set of steel rails (thus advancing the pipe) by a set of hydraulic jacks. The method can be used to drill earth or rock.
 3. Boring
This method consists of pushing the pipe into the fill with a boring auger rotating within the pipe to remove the soil. When augers or similar devices are used for pipe

placement, the front of the pipe shall be provided with mechanical arrangements or devices that will positively prevent the auger and cutting head from leading the pipe so that there will be no unsupported excavation ahead of the pipe. The auger and cutting head arrangement shall be removable from within the pipe in the event an obstruction is encountered. The over-cut by the cutting head shall not exceed the outside diameter of the pipe by more than one-half inch. The face of the cutting head shall be arranged to provide reasonable obstruction to the free flow of soft or poor material.

If an obstruction is encountered during installation that stops the forward action of the pipe, and if it becomes evident that it is impossible to advance the pipe, operations will cease and the pipe shall be abandoned in place and filled completely with grout.

Bored or jacked installations shall have a bore hole essentially the same as the outside diameter of the pipe. Grout any voids that develop. Also grout around the casing pipe when the bore hole diameter is greater than the outside diameter of the pipe by more than 1 inch.

4. Directional Drilling – see Specification 02458

This process employs a drilling bit that is guided through soil to create a round cavity, which will stay intact with suitable soils and conditions for at least several days. Consequently, soil testing may be required by the Engineer. Test hole and ream as required. The drill head is propelled and remains linked to the rig by adding segments of rod as the head proceeds forward. After the hole has been completed the drill bit is removed and a pulling adaptor is attached to the drilling stem and pipe is secured to the adaptor.

As the adaptor is pulled back to the rig, segments of drill rod are removed. Pipe is either a continuous fused material or segments of restrained pipe are added as the adaptor is pulled back to the rig. The selection of pipe material and restraints, if required must be approved by the Engineer. The process continues until the adaptor returns to the rig and all of the water main is in place.

This process may be employed only if approved by Engineer and governing transportation and or regulating authority). The drilled opening and pipe inserted cannot be less than 3 inches in tolerance. Circulate grout in annular space completely. Alignment and grade must be maintained and the drilled hole must be controllable using steering technology. Use radio equipment to track. Provide report of depth and location at 20 foot intervals during installation and submit as a report.

END OF SECTION

ILAWC SECTION 02226 - DIRECTIONAL DRILLING

PART 1: GENERAL

1.01 SCOPE

- A. This Section specifies directional drilling method for installation of Ductile Iron or High Density Polyethylene water line. Install water line by directional drilling at the locations indicated on the Drawings. Perform all work necessary and required for construction of the project as indicated on the plans. Before beginning anywork, the CONTRACTOR shall submit to the ENGINEER plans and details describing the materials and methods which he proposes to use.
- B. Codes, specifications and standards referred to by number or title shall form a part of this specification to the extent required by the references thereto. Latest revisions shall apply, unless otherwise shown or specified.

1.02 SUBMITTALS

- A. Submittal procedures shall be as specified in the General Conditions. Submit the following:
 - 1. Manufacturer's Certificate of Compliance certifying compliance with the referenced specifications and standards.
 - 2. Certified copies of reports of factory tests specified in this Section and required by the referenced standards.
 - 3. Experience requirements per Section 3.03.
 - 4. Work Plan: Prior to beginning work, the CONTRACTOR shall submit to the ENGINEER a work plan detailing the procedure and schedule to be used to execute the project. The work plan shall include a description of all equipment to be used, down-hole tools, a list of personnel and their qualification and experience (including backup personnel in the event that an individual is unavailable), list of subcontractors, a schedule of work activity, a safety plan (including MSDS of all substances to be used), an environmental protection plan and contingency plans for possible problems. Work plan should be comprehensive, realistic and based on actual working conditions for this particular project. Plan shall document the thoughtful planning required to successfully complete the project.

1.03 GENERAL PROCEDURES

- A. All work shall be done in careful, workmanlike manner to the satisfaction of the ENGINEER and the OWNER.
- B. The CONTRACTOR shall be prepared to attend all meetings and provide any necessary data, reports, information, details and construction schedules as requested by the ENGINEER.

PART 2: PRODUCTS

2.01 PIPE

- A. Ductile Iron (DI) Water Main Pipe shall be TR-Flex pipe and shall meet the requirements as specified in Section XX005478/XX005479 and the drawings.

PART 3: EXECUTION

3.01 SURFACE AND SUBSURFACE CONDITIONS

- A. Contractor shall verify the location of all known and unknown utilities and structures by test pitting prior to any boring. These utilities and structures include:
 - 1. Underground utilities such as, but not limited to: storm drains, electric lines, water mains, sewer lines and septic systems, gas lines, telephone lines, fiber optic lines, cable TV lines, wells and field drain tiles.
 - 2. Above ground utilities and other obstructions such as, but not limited to: Electric and telephone poles, trees, buildings and existing road signs.
- B. CONTRACTOR shall inspect the site, conduct investigations, surveys and tests, including subsurface investigations and tests that CONTRACTOR determines as necessary for the complete execution of all the work under this contract.

3.02 EQUIPMENT

- A. The directional drilling system to be used shall have the following features:
 - 1. The system shall be remotely steerable and permit electronic monitoring of tunnel depth and location. The system shall be able to control the depth and direction of the pipe and must be accurate to a window of ± 2 inches.
 - 2. The system shall utilize a fluid-cutting process, using liquid clay such as

bentonite. This clay shall be totally inert and contain no risk to the environment.

3. The liquid clay shall remain in the tunnel to increase the stability of the tunnel and to provide a lubricant to reduce frictional drag when the pipe is installed.
4. The spoils shall be recovered by use of a vacuum system mounted on a vehicle for removal of the spoils. Spoils shall not be discharged into sewers or storm drains. The Contractor shall dispose of all spoil material in a legal manner.
5. Equipment shall be fitted with a permanent alarm system capable of detecting an electrical current. The system will have an audible alarm to warn the operator when the drill head nears electrified cables within a safe operating distance. Refer to Section 3.4 for additional safety requirements.

3.03 EXPERIENCE

- A. The Contractor shall demonstrate experience and expertise in trenchless excavation methods by providing a list of six utility references for whom similar work has been performed prior to commencing any work. These references shall include a name and telephone number for contact so OWNER/ENGINEER may verify the claims.
- B. The Contractor shall also provide documentation showing successful completion of at least 50,000 linear feet of directional boring or shall obtain the services of an experienced directional boring subcontractor to supervise the installation prior to commencing any work. Conventional trenching shall not be considered as applicable experience.
- C. All supervisory personnel shall be adequately trained and shall have at least four years' experience in directional boring. The CONTRACTOR shall also submit the names and resumes of all supervisory field personnel for review by the ENGINEER prior to commencing any work.

3.04 SAFETY

- A. Mechanical, pneumatic or water-jetting methods shall not be acceptable due to the risk of surface subsidence and damage.
- B. Upon completion of boring and pipe installation, the CONTRACTOR shall remove all spoils from all starting and termination pits. The pits shall be restored to their original condition.

- C. Because directional boring maybe performed while existing buried electrical cable is energized; the following safety requirements shall be met:
1. All drilling equipment must have a permanent, inherent alarm system capable of detecting an electrical current. The ground system shall be equipped with an audible alarm to warn the operator when the drill head nears electrified cable within a safe operating distance.
 2. All crews shall be provided with grounded safety mats, heavy gauge ground cables with connectors, hot boots and gloves.
 3. All supervisor personnel shall be adequately trained and have direct supervisory experience in directional boring. Refer to Section 3.03.

END OF SECTION

ILAWC SECTION 02457 - SMALL SCALE HORIZONTAL DIRECTIONAL DRILLING
(HDD)

(Projects less than 250 feet or pipe size 12 inch and less)

PART 1: GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, tools and equipment as necessary to construct a pipeline crossing by the horizontal directional drilling method. Furnish all labor, equipment, materials and supplies and perform all work necessary to provide OWNER with a complete, finished water main crossing. The finished work includes proper installation testing, restoration of underground utilities and environmental protection and restoration.

1.02 QUALITY ASSURANCE:

- A. The HDD equipment operator(s) shall be trained to operate the specific Horizontal Directional Drilling equipment for the Owner's project with at least 3 years of experience in directional drilling obtained within the last five years that includes installation of potable water pipelines of the same or larger diameter and the same or greater lengths. All pipe and appurtenances of similar type and material shall be furnished by a single manufacturer.
- B. Perform HDD operations under the constant direction of a drilling supervisor who shall remain on site and be in responsible charge throughout the drilling operation. The Contractor's supervisor shall have supervised directional drilling of a minimum of 5,000 linear feet of pipe of a similar or greater diameter, of similar material, over similar lengths, and with similar subsurface conditions.
- C. Perform the work in conformance with the Directional Crossing Contractors Association (DCCA) published guidelines (latest edition) and pipe manufacturer's guidelines and recommendations.
- D. Adhere to the specifications; any changes must be expressly approved by the Engineer's. Approval of any aspect of any Directional Bore operation covered by this Specification shall in no way relieve the Contractor of its ultimate responsibility for the satisfactory completion of the work authorized under the Contract.

1.04 PROFILES AND TOPOGRAPHY

- A. Contours, topography and profiles of the ground as may be shown on the Contract Drawings are believed to be reasonably correct, but are not guaranteed to be absolutely so and are presented only as an approximation. It is the Contractor's responsibility to

verify all elevations required to successfully complete the crossing.

1.05 SUBMITTALS

- A. Prior to beginning work, submit to the Engineer copies of a report of schedules, calculations, procedures and any supplemental subsurface soil condition investigations performed along the path of the proposed crossing. The report will summarize the subsurface conditions that are known to the Contractor and that his proposed crossing procedure is based upon factual, best available information. If the subsurface conditions are known to the Contractor by previous work or geotechnical studies done in the immediate area, the information shall be recorded in the report along with any additional geotechnical studies performed by the Contractor. The report shall include the following:

1. Subsurface Information

- a. Record in the report subsurface conditions known to the Contractor by previous work or prior geotechnical studies performed in the immediate project area.
- b. Boring information obtained by the Owner, if any, is listed in the Supplementary Conditions section of these Specifications.
- c. Additional borings performed by the Contractor and analysis of soils along the path of the proposed crossing. The Contractor shall be responsible for obtaining and including in his bid price the cost of any additional borings along the pipe alignment which may be necessary to design the proposed directionally drilled crossing.

At a minimum any supplemental borings performed by the Contractor shall include standard classification of soils, standard penetration tests, split spoon sampling and sieve analysis. Test borings shall be performed to a minimum depth of ten (10) feet below the proposed pipe invert unless rock is encountered in which case test borings shall penetrate at least two feet into rock.

2. Drilling Equipment and Methods

- a. Submit details of equipment and written procedure with working drawings describing the proposed boring method and the entire operation to be used. This shall include, but not be limited to, entry and exit pits; settlement pit; size, capacity and arrangement of drilling and pulling equipment; layout of carrier pipe; details and spacing of pipe rollers; type of current head; method of monitoring and controlling line

and grade; method of detection of surface movement; and layout of any proposed construction staging areas.

- b. In addition, submit for approval nameplate data for the drilling equipment, mobile spoils removal unit, and Material Safety Data Sheets (MSDS) information for the drilling slurry compounds. This must be submitted and reviewed by the Engineer before work can proceed.

3. Piping

Submit shop drawings showing the pipe lengths, design details, joint details, etc. for the Engineer's review. Submittals shall include, but are not limited to, the following:

- a. All welding or fusion procedures to be used in fabrication of the different pipe materials and installation methods.
- b. Certified records for hydrostatic testing of all pipe materials to be used.
- c. An affidavit stating that all pipe materials furnished under this section have been manufactured in the United States of America and comply with all applicable provisions of referenced AWWA standards.

4. Proposed Alignment

Submit a graph in plan and profile plotting the pilot drilling hole alignment to the Engineer for review, including entry/exit angles and radius of curvature. After completion of the crossing, submit a final pipe alignment.

5. Schedule

Time schedule for completing the Directional Bore, including any delays due to anticipated soil conditions.

6. Calculations

- a. Submit detailed design calculations for several representative loading conditions for the proposed crossing. If requested by the Engineer, submit calculations to support the design of any particular location of pipe anywhere along the length of the crossing at no additional cost to the Owner.
- b. Design calculations shall be presented in a neat, readable format, with

all figures, values and units included to facilitate ease of verification.

- c. Calculations shall be submitted to demonstrate that the pipe thickness design is sufficient to meet all design criteria specified.
- d. Calculations shall address the following loading conditions:
 - i) Pre-installation:

Hoop and longitudinal stress during hydrostatic test; spanning stress with pipe full of water and supported on installation rollers, and maximum roller / support spacing.
 - ii) Installation/Post-Installation

Longitudinal stress from pulling force; longitudinal curvature stress at point of entry and in final position; external pressure from drilling fluid, overburden, and loads from the obstacle being crossed.
 - iii) Post-Installation/In-Service

Hoop and longitudinal stress during hydrostatic test; internal working and surge pressure; buckling with internal vacuum.
- e. Perform and submit to the Engineer fluids pressure versus overburden strength calculations. These calculations shall be performed to determine minimum acceptable cover requirements and prevent drilling fluids breakout to the ground surface.
- f. All calculations shall bear the seal of a Registered Professional Engineer. Licensure in the State that the work is performed is preferred.

B. Approval

- 1. No work shall commence without approval by the Engineer. Details and design calculations shall be submitted and approved well in advance of the drilling operation to prevent delays in work. All final layout work, including grades, shall be the Contractor's responsibility.

1.06 JOB CONDITIONS:

- A. Any nighttime work is strictly regulated and will be allowed only with prior approval granted by the Owner subject to regulatory agencies having jurisdiction. All crossing operations shall be accomplished during daylight hours, unless approved by the Engineer. Crossing work shall not begin after the hour pre-established as the latest starting time that will allow completion during daylight hours, unless approved by the engineer. The Contractor shall provide a Work Plan submittal indicating its proposed hours of operation and length of work week. All work plans shall be subject to compliance with all applicable regulatory requirements for construction activities and any off site impacts.
- B. When hazards of night time work are carefully considered and determined to be insignificant, night time work may be allowed only to complete a properly planned crossing, and only if in the opinion of the Engineer the delay was caused by reasonably unavoidable circumstances, and that such night time work is necessary to avoid placing an undue economic hardship on the Contractor.
- C. In emergency situations, or where delay would increase the likelihood of a failure, nighttime work may be allowed to complete a delayed crossing.
- D. All operations shall continue on a 24-hour per day basis during pipe pull back.

1.07 COORDINATION OF WORK

- A. Coordinate connections to existing pipelines that require shutdown of OWNER facilities. OWNER will designate the time for these connections that could involve work during evenings, nights, Saturdays, Sundays, or holidays. Method of connection and designated times are to cause the least amount of disruption to OWNER'S water service to its customers. The cost for connections is to be included in the contract price. No contract price adjustment will be allowed for overtime, premium time, or other related costs.

1.08 USE OF EXISTING WATER SYSTEMS:

- A. All use of existing water systems during construction by the Contractor shall be with the approval and direction of the system Owner and its representatives. The Contractor shall be responsible for all permits, fees, temporary piping, temporary meter rental/provisions, temporary backflow preventer rental/provision and other water utility requirements for supplying water during construction. Use the existing water system only at locations, times and conditions as set forth by the system owner or its representatives.
- B. If water is not readily available at the site or the Owner cannot provide the volume of flow required by the Contractor, provide potable water as needed from an off-site

location at no additional cost to the Owner.

PART 2: PRODUCTS

2.01 PIPE

- A. Pipe shall be HDPE pipe with ductile iron pipe outside diameters in accordance with AWWA C906. Verify the appropriate dimension ratio based on the pipe, joint and material pull strength required for the directional drilling.
1. HDPE pipe and related fittings shall be made with prime virgin resins exhibiting a minimum cell classification as defined in ASTM D3350 and meeting the PE 3408 code designation with maximum dimension ratios equal to 11
 2. HDPE pipe 4-inch and larger nominal diameter shall be joined by means of zero leak-rate butt (thermal heat) fusion welds and/or approved flanged joints. Joints shall provide axial pullout resistance. Pipe shall meet the requirements of ANSI/AWWA C906, and have an outside diameter dimension of ductile iron pipe. Flanged joints shall not be used below finished grade for horizontal directional drilling applications.
 3. HDPE pipe shall have been continuously marked by the manufacturer with permanent printing indicating at a minimum the following.
 - a. Nominal size (inches);
 - b. Dimension ratio (DR);
 - c. Pressure rating (psi);
 - d. Trade name;
 - e. Material classification (PE 3408);
 - f. Plant, extruder and operator codes;
 - g. Resin supplier code;
 - h. Date produced; and
 - i. HDPE pipe used for portable water mains shall bear the NSF Seal of Approval.
 4. HDPE pipe shall be black in color with permanent blue colored stripes extruded into the pipe length or shall be solid blue color.
 5. Installation Curvature: The pipeline curvature shall not have a radius less than as shown in Table 2458-1.

Table 2458-1. HDPE Pipe Deflection Information.

Pipe Diameter (inches)	Minimum Radius of Curvature (feet)	Offset per 20-ft Length (inches)
4	23	9.3
6	34	6.1
8	44	4.6
10	56	3.5
12	67	3.0

2.02 EQUIPMENT:

- A. General: All equipment for the Directional Bore shall have the capacity, stability, and necessary safety features required to fully comply with the specifications and requirements of this section without showing evidence of undue stress or failure. It shall be the responsibility of the Contractor to assure that the equipment to be used in the Directional Bore is in sound operating condition. Backup equipment shall be required in the event of an equipment breakdown and where the condition of the equipment to be used indicates that routine component replacement or repair will likely be necessary during the Directional Bore.

- B. Directional Drilling System: The directional drilling system shall consist of over the road transportable field power unit, mud-mixing and recycling unit, a trailer or carriage-mounted drill unit, and all other support accessory vehicles and equipment. All system components shall be in sound operating condition with no broken welds, excessively worn parts, badly bent, or otherwise misaligned components. All drill pipe, reamers, pull back heads, swivels, drill heads and collars, pipe cradles, pipe rollers, ropes, cables, clamps, and other non-mechanical but essential items shall be in sound condition and replaced immediately when need is apparent. The equipment must be capable of drilling the specified length in a single bore.
 - 1. Mud-Mixing and Recycle Units: The mud-mixing and recycle unit shall be a self-contained system designed to provide a supply of high-pressure bentonite based cutting fluid to the drill unit. It shall contain a fluid storage tank and a complete bentonite and drilling fluid additive(s) mixing system. The cutting fluid is to be mixed on site. The cutting fluid shall be formulated for this specific project and anticipated conditions. It shall permit changes to be made to the bentonite and drilling fluid additive(s) concentrations during drilling in response to changing soil conditions. The field power unit shall contain the power-taken off-driven high pressure cutting fluid pumping system. The recycle units shall be of a capacity to minimize the production of new cutting fluid and maximize the reuse and recirculation of original cutting fluid produced.

2. Directional Drill System: A carriage-mounted version of the drill system shall include a thrust frame. Both the trailer-mounted and carriage-mounted drill system shall be designed to rotate and push 10-foot (3-meter) minimum hollow drill sections into the tunnel being created by the boring head. The drill sections shall be made of high strength S-grade steel that permits them to bend to a 30-foot (9-meter) radius without yielding. Drill end fittings shall permit rapid makeup of the drill sections while meeting the torque, pressure and lineal load requirements of the system. The boring head itself shall be capable of housing a probe used by the Magnetic Guidance System (MGS) to determine tool depth and location from surface and to orient the head for steering. The MGS shall have a minimum accuracy of plus (+) or minus (-) two (2) percent of the vertical depth.

The drilling equipment must be fitted with a permanent alarm system capable of detecting an electric current. The system will have an audible alarm to warn the operator when the drill head nears electrified cables. The drilling equipment shall be grounded, protected, and operated in accordance with manufacturer's requirements for electric strike safety.

The control console shall contain a calibrated display of inclination, azimuth, tool face location, mud pump rates, and torque pressures. The downhole steering system accuracy shall be plus or minus one percent ($\pm 1.0\%$) of the horizontal bore length such that the difference between actual depth and machine calculated depth is not more than 1 foot per hundred feet.

3. Restrictions: Other devices or utility placement systems for providing horizontal thrust other than those previously defined in the preceding sections shall not be used unless approved by the Engineer prior to commencement of the work. The proposed device or system will be evaluated prior to approval or rejection on its potential ability to complete the pipe placement satisfactorily without undue stoppage and to maintain line and grade within the tolerances prescribed by the particular condition of the project. Water sluicing methods, jetting with compressed air, or boring or tunneling devices with vibrating type heads that do not provide positive control of the line and grade shall not be allowed.

- C. Spoils Equipment: The cutting fluid removal system shall include a self-contained vacuum truck which has sufficient vacuum and tank capacity to remove excess cutting fluid mixture and cuttings from the project site as required or directed by the Engineer. Spoils are not to be discharged into sewers or storm drains.

Contain all drilling and pipe lubricating mud by taking special measures to prevent run-off into adjacent properties and/or waterways. All surplus drilling and pipe lubricating mud will be removed from the site and properly disposed of by the Contractor. The Contractor will also be responsible for all required erosion control measures.

- D. Magnetic Guidance System: A Magnetic Guidance System (MGS) probe and location of the drill head during the drilling operation. The tracker shall be capable of tracking at all depths up to one hundred feet and in any soil condition, including hard rock. It shall enable the driller to guide the drill head by providing immediate information on the tool face, azimuth (horizontal direction), and inclination (vertical direction). The tracker shall be accurate to +/-2% of the vertical depth of the borehole at sensing position at depths up to one hundred feet. Ferrous materials shall not influence or affect the MGS readings or accuracy.

Components: Supply all components and materials to install, operate, and maintain the MGS. This shall include, but not be limited to the following:

- MGS Probe and Interface
- Computer, Printer, and Software
- DC Power Source, Current Control Box, and Coil/Tracking Wire.

The Magnetic Guidance System (MGS) shall be a Tensor TruTracker MGS, or other licensed and industry approved wire guidance system. The Engineer shall be advised of the unit to be used and is subject to his approval. Set up and operate the MGS using personnel experienced with this system. A Walk-over" tracking systems shall not be used, except as approved by the Engineer. Contractor shall provide Engineer with current calibration certification of MGS in accordance with manufacturer's specifications.

- E. If equipment breakdown or other unforeseen stoppages occur and forward motion of the directional cutting head is halted at any time other than for reasons planned in advance (addition of drill stems, etc.), the boring path shall be filled with a proper bentonite solution immediately, or as directed by the Engineer.
- F. The boring tool shall have steering capability and have an electronic tool detection system. The position of the tool during operation shall be capable of being determined accurately, horizontally within 1% of the horizontal distance of the borehole and vertically within 2% of the vertical depths of the borehole. The boring tool shall have a nominal steering radius of 9 meters (30 feet).
- G. The directional drilling machine shall consist of a hydraulically powered system to rotate, push and pull hollow drill pipe into the ground at a variable angle while delivering a pressurized fluid mixture to a guidable drill (bore) head. The machine shall be anchored to the ground to withstand the pulling, pushing and rotating pressure required to complete the crossing. The hydraulic power system shall be self-contained with sufficient pressure and volume to power drilling operations.
- H. Hydraulic system shall be free of leaks. Rig shall have a system to monitor and record maximum pullback pressure during pullback operations. The rig shall be grounded

during drilling and pullback operations. There shall be a system to detect electrical current from the drilling string and an audible alarm that automatically sounds when an electrical current is detected.

2.03 DRILLING FLUIDS

- A. Drilling fluids shall consist of a mixture of potable water and gel-forming colloidal material, such as bentonite or a polymer surfactant mixture producing slurry of custard-like consistency.
- B. Where sandy or granular materials are encountered, a cement slurry or polymer supplement shall be considered for added strength and stability of the bore and over ream hole.
- C. No chemicals or polymer surfactant shall be used in the drilling fluid without written consent of the Engineer, and after a determination is made that the chemicals to be added are not harmful or corrosive to the facility and are environmentally safe. Clay must be totally inert and contain no risk to the environment.
- D. Provide Owner, Engineer and have on site at all times the Material Safety Data Sheets (MSDS) for all drilling compounds and chemicals.

2.04 TRACER WIRE

- A. Tracer or location wire shall be a direct burial #12 AWG Solid (.0808" diameter), steel core hard drawn extra high strength horizontal directional drill tracer wire, 1150# average tensile break load, 45 mil. High molecular weight-high density blue polyethylene jacket complying with ASTM D1248, 30 volt rating. The wire shall be contiguous except at test stations, valve boxes, and where splicing is required. All splices shall be encased with a 3M-Gel Pack model No. 054007-09053. Wire insulation shall be highly resistant to alkalis, acid and other destructive agents found in soil. Location Wire shall be from Copperhead Industries, LLC, part number 1230B-HS or approved equal
- B. Tracer wire shall be installed simultaneously with pullback of the HDPE pipe. Wire shall either be wrapped around the pipe or taped to the pipe at 10 foot minimum intervals before installation.

PART 3: EXECUTION

3.01 SITE DISTURBANCE AND SOIL EROSION

- A. Sediment barriers shall be constructed as shown on the Drawings or where directed by the Engineer. All soil erosion and sediment control work shall be done in accordance

with the Standards for Soil Erosion and Sediment Control for the location where the work is performed. Contractor shall maintain sediment barriers until the project is deemed complete.

- B. The Contractor shall be responsible for the preservation of all existing trees, plants, and other vegetation that are to remain within or adjacent to the construction site and shall also be responsible for protecting existing concrete curb, fence, utilities, and other structures that are located within or adjacent to the construction site.
- C. The Contractor assumes all liability for environmental damage and cleanup due to inadvertent discharges of slurry or other causes. Slurry materials shall be selected based on the soil conditions encountered to minimize the risk of mud returns.

3.02 PERSONNEL REQUIREMENTS:

- A. Provide a competent and experienced supervisor representing the Drilling Contractor who must be present at all times during actual operations. A responsible representative, who is thoroughly familiar with the equipment and type work to be performed, must be in direct charge and control of the operation at all times. In all cases the supervisor must be continually present at the job site during the actual Directional Pilot Hole, over reaming and pullback operations.
- B. Have a sufficient number of competent workers on the job at all times to insure the Directional Bore is made in a timely and satisfactory manner. Adequate personnel for carrying out all phases of the actual Directional Bore operation must be on the job site at the beginning of work.
- C. If HDPE is specified for the carrier pipe, HDPE pipe thermal butt fusion welding is to be completed by a welder certified by the manufacturer of the pipe or pipe welding equipment, in accordance with the Plastic Pipe Institute "Handbook of Polyethylene Pipe," Polyethylene Joining Procedures, and 49 CFR 192, Subpart F, latest edition.
- D. If steel pipe is specified for the carrier or casing pipe, welding shall be performed by certified welders. The CONTRACTOR shall be responsible for the qualification of welders with qualification testing conducted by an independent testing agency in accordance with American Welding Society D1.1 requirements. Results of qualification testing shall be submitted to the ENGINEER for approval. Results of previous qualification tests performed within six months from the date of pipe installation will be acceptable. Results from qualification tests performed prior to six months from the date of pipe installation will not be acceptable. All costs associated with qualification testing shall be included in the unit prices bid.
- E. The Engineer and Owner must be notified 48 hours in advance of starting each phase of the work. The Directional Bore shall not begin until the Engineer is present at the

job site and agrees that proper preparations for the operation have been made. The Engineer's approval for beginning the installation shall in no way relieve the Contractor of the ultimate responsibility for the satisfactory completion of the work as authorized under the Contract. It shall be the responsibility of Owner to provide inspection personnel at such times as appropriate without causing undue hardship by reason of delay to the Contractor.

- F. If the Contractor fails to begin the Directional Bore at the agreed time, the Owner will establish the next mutually convenient time to begin. To avoid undue hardship of either party, reasonable and mutual cooperation should be exercised where starting times are concerned. If one party fails to meet the agreed schedule, the other party is expected to consider a delayed start if the installation cannot be completed during daylight hours.

3.03 ALIGNMENT AND GRADE

- A. Determine and physically locate the depth, location, and size of all existing underground facilities in the vicinity of the proposed crossings and provide the ENGINEER with a comprehensive report of these facilities before starting any construction. The Contractor shall be held completely and solely responsible for any damages incurred. The kinds, locations and sizes of the existing underground utilities which may be shown on the Contract Drawings are intended only as a guide to the Contractor and are not guaranteed to be even approximately correct. Notify the owners of all existing utilities along the route and in the vicinity of the crossing prior to the construction to include all test borings and excavations.
- B. If utilities of unknown depth or other obstructions require grade or alignment deviations from the Plans, the grade and/or alignment may be adjusted with Engineer's approval. All adjustments shall permit gradual bends of the pipe to the original alignment beyond the directional bore section. At unusual site conditions, the Contractor may request a review of site conditions by the Engineer for additional adjustment, and such determination shall be final. An adjustment in alignment, position, or elevation approved by Engineer shall not be cause for an adjustment of costs.
- C. Pipe entry and exit points are to be allowed no more than five (5) feet of deviation from the staked centerline. The entry point may be moved up to twenty-five (25) feet further from the original entry point only with Engineer's approval. Exit point lengths greater than twenty-five (25) feet from the original point require Engineer's approval. Entry and exit points normally will not be allowed closer to the banks of a waterway being crossed. Any installation that deviates from the plan may be rejected and any rejected installation shall be reconstructed at the Contractor's expense.
- D. The vertical profile as shown on the drawings is the minimum depth to which the pipeline shall be installed. Contractor may, at his option and with the permission of

Owner, elect to install the pipe at a greater depth than shown on the drawings, at no additional cost to the Owner.

3.04 INSTALLATION:

- A. The Contractor shall be responsible for providing a Maintenance of Traffic Plan to the Engineer and local traffic law enforcement agency for review. The Maintenance of Traffic Plan shall show the location of all barricades, signs, devices and alternate routes for local traffic and pedestrian safety. Erection of the appropriate safety and warning devices in accordance with the USDOT "Manual of Uniform Traffic Control Devices" (MUTCD) shall be completed prior to beginning work and maintained until all construction is completed and the site restored.
- B. Specifically note in the Maintenance of Traffic Plan street intersections that are to remain open as required during the pipe pull-back operation, or traffic detours implemented. Install a temporary sleeve across the street intersections through which the pipe can be pulled or to construct a temporary bridge for the pipe over the intersections as required. No additional payment will be made for temporary structures required in order to permit access through street intersections or the implementation of traffic detours.
- C. The cost of restoring pavement, curb, sidewalk, driveways, lawns, storm drains, etc., and other landscaped facilities shall be borne by the Contractor unless otherwise noted.
- D. The following is a general outline of steps for the Directional Bore operation:
 - 1. Clear the right-of-way and temporary work space as shown on the drawings. Contractor to install and maintain all soil erosion and sediment control devices, until project completion with approved permanent site stabilization.
 - 2. Lay out the pipe crossing alignment using a qualified land survey team to confirm accurate horizontal distances, either physically measured or shot by Electric Distance Measurement. Entry and exit points shall be located and marked with survey hubs or markers. Payment for survey mark-out shall be included in the price bid under horizontal directional drilling.
 - 3. Haul, string, and assemble restrained pipe. Joint air test the section prior to installation and hydrostatically test the assembled pipeline section, unless otherwise approved by Engineer. If sufficient linear footage of lay down area for the pipe string is not available, the finished pipeline may be assembled in no more than two sections, with each section joint air tested separately and hydrostatically tested when fully assembled as one piece. The CONTRACTOR will be responsible for ensuring that the drill rig has

adequate pullback capacity to overcome the increased frictional resistance resulting from the stoppage of pipe pullback to perform the final weld or fusion of pipe sections. Provide adequate site security and shall be responsible for the integrity of the pipe until after the pullback, final test of the pipeline, and acceptance of the work by the Owner.

All assembled pipe sections shall be securely plugged at the end of each work day. The pipe interior is to be protected at all times against dirt, dust, drilling mud, pipe cuttings, debris, animal access, and other sources of contamination.

4. Provide adequate support rollers for the pipeline during pullback of the pipe string into the pre-drilled hole. The rollers and cradles shall be of a type that will prevent damage to the pipe and will be of sufficient number, as recommended by pipe manufacturer, to prevent over stressing due to sag bends during the pullback procedure. The pipe shall be supported at all times, including pullback, to maintain a free stress arc which limits pipe bending and internal hoop stresses to within manufacturer's limits.

Pipe which is not properly protected and supported and shows indications of excessive stressing, gouges, cuts, abrasions or other damage which may affect the operational performance intended for the pipe, as recommended by pipe manufacturer, shall be removed from the site and replaced at no additional cost as directed by the Owner or Engineer.

5. Mobilize the drilling equipment, erect the rig, drill a pilot hole, enlarge the hole as necessary to a minimum diameter of 1.5 times the nominal diameter of the pipe, and pullback the prefabricated pipe string under the crossing.

Prior to beginning the Pilot Hole over reaming, furnish to the Engineer with an as-built plan and profile of the actual crossing to confirm the installation is in compliance with the Contract Documents. Pilot hole alignment shall be accepted by Owner in writing prior to reaming and pipe installation.

The Contractor shall be responsible for selecting the reaming process to be utilized, whether forward and/or back reaming will be undertaken, and the number of reaming passes to be made.

6. Supply portable mud tanks or construct temporary mud pits to contain excess drill fluids during construction and slurry material displaced by the pipe during installation. Mud pits are to be protected at all times against unauthorized access and be stabilized at all times against surface water runoff and containment berm failure. Pump, haul and dispose of any drill cuttings and excess drill fluids to a receiving site permitted to accept the spoils, all in a manner consistent with the local and state regulations at no additional cost to the Owner.

7. Pull back the bore pipe in one continuous section and contractor using a swivel to minimize the rotation of the product pipe during pullback. Swivel shall utilize lubricated internal bearings which are fully protected from external contamination and over lubrication. Demonstrate the swivel operation prior to pull back to the Engineer prior to the operation.
8. Use potable water and disinfect all piping and hoses used for water addition to the carrier pipe to counter the pipe flotation during pullback.
9. During pullback, maintain records for submission to Owner indicating job, date, time, constant pipe footage progress, mud flow rates, pulling forces required and torque readings. Document the pull head location for each length of drill stem pipe for as build records.
10. Unless not permitted by the right of way owner, inject low strength cement slurry into the bore hole for approximately 50 feet at each end of the drilled pipeline. Where cement slurry cannot be used, provide restraint at either end of the pipeline outside the bore to hold the pipe in place. The type of restraint shall be submitted to the Engineer in advance of the work and must be approved by the Engineer prior to the start of construction.
11. Owner and Engineer shall have access at all times to any measuring or gauging devices used for the horizontal drill as well as any drilling logs maintained by the Contractor.
12. In the event that the Contractor must abandon the drill hole before completion of the crossing, the Contractor will seal the borehole with neat cement grout starting at the low point or end of the drill hole and redrill the crossing at no extra cost to Owner.

3.05 PRESSURE TESTING AND LEAKAGE

Prior to pullback, perform an allowable leakage test on the full length of pipe after all sections have been welded or fused in accordance with ANSI/AWWA C600, latest revision and as described in Specification Section 15030. A hydrostatic pressure test shall also be performed on the installed pipe in accordance with ANSI/AWWA C600, latest revision and as described in Specification Section 15030.

3.06 CONNECTION TO ADJOINING PIPE

- A. Install flange connections from the directionally drilled pipe to adjacent pipe installed by open cut with support by backfill material as per Specification Section 2210. Flange bolts shall be carefully tightened in increments, with a final torque value not exceeding the manufacturer's recommendations. Tightening torque increments shall not exceed 15

foot pounds.

- B. Polyethylene and flange gasket will undergo some compression set. Therefore, the flange bolts shall be retightened one hour after the initial assembly, and a second time at least four hours after the second tightening.

3.07 DISINFECTION

- A. The carrier pipe shall be disinfected as described in Specification Section 15020 or as otherwise approved in advance by the Engineer.
- B. The carrier pipe can be filled with potable water, pressure tested and disinfected prior to insertion. Provide Engineer with full work plan to employ this alternative.

3.08 AS-BUILT RECORDS

The MGS pullback data shall be recorded every pilot hole drill stem length during the actual crossing operation. The Contractor shall furnish “as-built” plan and profile drawings, on the same horizontal and vertical control datum shown on the contract documents, based on these recordings showing the actual location horizontally and vertically of the installation, and all utility facilities found during the installation.

PART 3 - EXECUTION

3.01 PERSONNEL REQUIREMENTS

- A. Responsible representatives of the CONTRACTOR and DRILLING SUBCONTRACTOR(s) shall be present at all times during directional drilling operations. A responsible representative as specified herein is defined as a person experienced in the type of WORK being performed and who has the authority to represent the CONTRACTOR in a routine decision making capacity concerning the manner and method of carrying out the WORK.
- B. The CONTRACTOR and DRILLING SUBCONTRACTOR(s) shall have sufficient number of competent workers on the project at all times to ensure the utility placement is made in a timely, satisfactory manner. Adequate personnel for carrying out all phases of the directional drilling operation (where applicable: tunneling system operators, operator for removing spoil material, and laborers as necessary for various related tasks) must be on the job site at the beginning of WORK. A competent and experienced supervisor representing the CONTRACTOR or SUBCONTRACTOR that is thoroughly familiar with the equipment and type of WORK to be performed, must be in direct charge and control of the operation at all

times. In all cases, the supervisor must be continually present at the project site during the directional drilling operation.

3.02 WORK PLAN

- A. Prior to beginning WORK, submit a WORK plan to UTILITIES detailing the procedure and schedule to be used to execute the project. The WORK plan should include the following.
 - 1. A description of all equipment to be used;
 - 2. Down-hole tools;
 - 3. A list of personnel and their qualifications and experience;
 - 4. List of SUBCONTRACTORS;
 - 5. A schedule WORK activity;
 - 6. A safety plan, traffic control plan (if applicable);
 - 7. An environmental protection plan and;
 - 8. Contingency PLANS for possible problems.

- B. WORK plan should be comprehensive, realistic and based on actual working conditions for this particular project. Plan should document the requirements to complete the project

- C. Equipment:
 - 1. Submit specifications on directional drilling equipment to be used to ensure that the equipment will be adequate to complete the project. Equipment shall include but not be limited to the following:
 - a. Drilling rig;
 - b. Mud system;
 - c. Mud motors (if applicable);
 - d. Down-hole tools;
 - e. Guidance system and;
 - f. Rig safety systems.

 - 2. Submit calibration records for guidance equipment for any drilling fluid additives that will or might be use.

3.03 COORDINATION OF THE WORK

- A. Notify UTILITIES at least three days in advance of starting WORK. In addition, the actual crossing operation shall not begin until UTILITIES is present at the project site and agrees that proper preparations for the crossing have been made. UTILITIES'

approval for beginning the crossing shall in no way relieve the CONTRACTOR from the ultimate responsibility for the completion of the WORK.

- B. Coordinate with utilities to select a mutually convenient time for the crossing operation to begin in order to avoid schedule conflicts.

3.04 PROCEDURE

- A. The installation of appropriate safety and warning devices in accordance with the "FDOT Manual on Traffic Control and Safe Practices" shall be completed prior to beginning WORK.

3.05 INSTALLATION

- A. Erosion and sedimentation control measures and on-site containers shall be installed to prevent drilling mud from spilling out of entry and/or exit pits. Drilling mud will be disposed of off-site in accordance with local, state and federal requirements and/or permit conditions. No other chemicals or polymer surfactant shall be used in the drilling fluid without written consent of UTILITIES and after a determination is made that the chemicals to be added are not harmful or corrosive to the facility and are environmentally safe.
- B. Pilot Hole:
Pilot hole shall be drilled on bore path with no deviations greater than two percent of depth over a length of 100 feet. In the event that pilot does deviate from bore path more than two percent of depth in 100 feet, the CONTRACTOR will notify ENGINEER. The ENGINEER may require the CONTRACTOR to pull-back and redrill from the location along bore path before the deviation.
- C. Reaming:
Upon successful completion of pilot hole, ream borehole to a minimum of 25 percent greater than outside diameter of pipe using the appropriate tools. Do not attempt to ream at one time more than the drilling equipment and mud system are designed to safely handle.
- D. Pullback:
After successfully reaming borehole to the required diameter, put the pipe through the borehole. In front of the pipe will be a swivel and barrel reamer to compact bore hole walls. Once pullback operations have commenced, operations must continue without interruption until pipe is completely pulled into borehole. During pullback operations, do not apply more than the maximum safe pipe pull pressure at any time. A break away head rated at the maximum safe pull pressure shall be utilized.

- E. As-built variance from the designed bore path shall not exceed plus or minus one foot in the vertical plane and plus or minus two feet in the horizontal plane. Submit any proposed deviations from the design bore path with SHOP DRAWINGS.
- F. The pipe entry area shall be graded to provide support for the pipe to allow free movement into the borehole. The pipe shall be guided in the borehole to avoid deformation of, or damage to, the pipe.
- G. If unexpected subsurface conditions are encountered during the bore, the procedure shall be stopped. The installation shall not continue until the OWNER and ENGINEER have been consulted. H. The pipe shall be pulled back through the borehole using the wet insertion construction technique. The pipe shall be installed full of water. I. The pipe shall be installed in a manner that does not cause upheaval, settlement, cracking, movement or distortion of surface features. J. A boring log shall be kept with horizontal and vertical location every 25 feet.

3.06 FIELD TESTING

- A. PVC Pipe:
Perform hydrostatic testing for leakage following installation in accordance with the applicable test sections.
- B. HDPE Pipe:
After installation the pipe shall be tested in accordance with the MANUAL with the following modifications:
 - 1. Test Duration: The total test time including initial pressurization, initial expansion and time at test pressure, must not exceed eight hours. If the test is not completed due to leakage, equipment failure, etc., the test section shall be depressurized and allowed to “relax” for a minimum of eight hours before it is brought back up to test pressure. The test procedure consists of initial expansion phase and leakage test phase.
 - 2. Initial Expansion Phase: During the initial expansion phase, the test section is pressured to the test pressure and enough make-up liquid is added each hour for three hours to return to test pressure.
 - 3. Leakage Test Phase: The leakage test phase follows immediately and shall be either two or three hours in duration. At the end of the time test, the test section shall be returned to test pressure by adding a measured amount of liquid. The amount of make-up liquid added shall not exceed the values provided in Table 3.15-6 plus allowable leakage

Table 3115-6. Allowance for Make-up Water Under Test Pressure*

Test Duration (hours)	Pipe Diameter (inches)							
	2	4	6	8	12	16	20	24
2.	0.11	0.25	0.60	1.00	2.30	3.30	5.50	8.90
3	0.19	0.40	0.90	1.50	3.40	5.50	8.00	13.00

Allowance/100 feet of Pipeline (gallons) **Applies to test period and not to initial expansion phase*

- C. Pressure Testing:
The test pressure for the pipe shall be 150 psi for water and reclaimed water and 100 psi for wastewater.
- D. Mandrel Testing:
Perform mandrel testing through the entire length of the installed pipe. The mandrel size shall be 90 percent of the inside diameter of the pipe

END OF SECTION

ILAWC SECTION 02558 - IDENTIFICATION/LOCATION GUIDE

PART 1: GENERAL

1.01 SCOPE

- A. Furnish and install identification tape and location wire over the centerline of buried potable water mains, hydrant branches, and trenched services as indicated in this specification or noted in the drawings.

PART 2: PRODUCTS

2.01 IDENTIFICATION TAPE

- A. Identification Tape for Pipe

Identification tape shall be manufactured of polyethylene with a minimum thickness of 4-mils and shall have a 1-mil thick metallic foil core. The tape shall be highly resistant to alkalis, acid and other destructive agents found in soil. Tape width shall be a minimum of 3 inches and a maximum of 6 inches and shall have the background color specified below, imprinted with black letters. Imprint shall be as specified below and shall repeat itself a minimum of once every 2 feet for entire length of the tape.

- B. Tape background colors and imprints shall be as follows:

<u>Imprint</u>	<u>Background Color</u>
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“CAUTION CAUTION - WATER LINE BURIED BELOW”	Blue
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- C. Identification tape shall be “Terra Tape” as manufactured by Reef Industries, Inc., Houston, TX, or approved equal.

2.02 LOCATION WIRE

- A. Location (Tracer) Wire for Polyvinyl Chloride and HDPE pipe (and other pipe where noted in the drawings or identified in special conditions)

Location wire shall be a direct burial #12 AWG Solid (.0808” diameter), 21% conductivity annealed copper-clad high carbon steel strength tracer wire, 380# average tensile break load, 30 mil. High molecular weight-high density blue polyethylene jacket complying with ASTM D1248, 30 volt rating. The wire shall be contiguous except at test stations, valve boxes, and where splicing is required. All splices shall be encased with a 3M-Gel Pack model No. 054007-09053. Wire

insulation shall be highly resistant to alkalis, acid and other destructive agents found in soil.

- B. Location Wire shall be from Copperhead Industries, LLC, part number 1230B-HS or approved equal.
- C. If directional drilling is used for this project please refer to specification 02458 for the product description of location wire to be used with the directional drilling

2.03 RESTRAINED JOINT MARKING TAPE

- A. Joint restraint tape is specifically to warn Water Company workers/contractors that the water main is joint restrained. It is not to be used in place of regular marking tape.
- B. Restrained Joint Marking Tape (for with mains that are restrained joint as directed by the Engineer) shall be polyethylene 4-mill thick and 2 ½-inches wide with blue lettering on white background color and imprinted with the words “RESTRAINED JOINT” every 2 foot. The tape shall have an adhesive backer. The tape shall be highly resistant to alkalis, acid and other destructive agents found in soil.
- C. Restrained Joint Gasket indicator tape shall be part number 515401-010 manufactured by St. Louis Paper & Box Company located at 3843 Garfield, St. Louis, MO 63113 or approved equal.

PART 3: EXECUTION

3.01 INSTALLATION OF IDENTIFICATION TAPE

- A. Install the identification tape with all buried potable water lines in accordance with the manufacturer’s installation instructions and as specified.
- B. Install identification tape one foot above the top of the pipe.

3.02 INSTALLATION OF LOCATION (TRACER) WIRE

- A. Install location wire with buried water lines in accordance with the manufacturer’s installation instructions and as specified in Contract Documents.
- B. Install the location wire directly on top of the buried pipe.
- C. In all pipe installations, loop the location wire up into a Tracer Wire Access Box not the valve boxes for connection to a locating device. The wire shall be one continuous

piece from access box to access box up to 1250 feet maximum.

3.03 INSTALLATION OF RESTRAINED JOINT MARKING TAPE

- A. Install the joint marking tape by adhering directly to the pipe as it is installed. The marking tape shall be installed along the entire length of pipe, including around the circumference of the bells of all fittings and valves. The pipe must be free of any foreign matter along the surface of the pipe for the marking tape installation. If clear polywrap is used, the restrained joint tape can be applied on the top of the pipe so long as it is visible. Otherwise the joint marking tape shall be applied on top of the polywrap and secured so the tape is not shifted by backfilling.

- B. The tape does not adhere in wet or cold conditions. The tape should be stored in temperatures above 50 degrees F until the time of application. The pipe must be free of frost and moisture along the surface of the pipe receiving the tape.

END OF SECTION

ILAWC SECTION 03300 - CAST-IN-PLACE CONCRETE

PART 1: GENERAL

1.01 SCOPE OF WORK

- A. Provide concrete for thrust blocking, manhole bases, pipe encasement, curbs, sidewalks and pavement in accordance with this Specification Section.

PART 2: PRODUCTS

2.01 MATERIALS

- A. Portland Cement shall be Type I or Type III and conform to "Specification for Portland Cement" ASTM C150.
- B. Air-Entraining Agent from approved manufacturer shall be added in accordance with manufacturer's directions to the normal Portland cement to entrain 4½ percent air ± 1 percent with all other ingredients and strength as specified. Air-entraining admixtures shall conform to "Specifications for Air-Entraining Admixtures for Concrete" ASTM C260.
- C. Concrete Aggregates shall conform to "Specifications for Concrete Aggregates" ASTM C33. Coarse aggregates shall be a maximum of 1½ inches in size in footings and plain concrete. Pea gravel shall be used for sections 3 inches or less in thickness.
- D. Water used in mixing concrete shall be clean and free from injurious amounts of oils, acids, alkalis, organic materials, or other deleterious substances. In effect, the water used shall be potable water.
- E. Reinforcing Bars shall be billet steel grade (60,000 psi minimum yield) conforming to the requirements of ASTM A615, Grade 60. Reinforcing bars shall be new stock, free from rust, scale, or other coatings that tend to destroy or reduce bonding.
- F. Welded Wire Mesh shall conform to "Specifications for Welded Steel Wire Fabric for Concrete Reinforcements" ASTM A185.
- G. Premolded Expansion Joint Material shall be provided where shown on the Drawings or directed by the Engineer. This non-extruding compressible joint material shall conform to the requirements of "Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction", ASTM D1751.

2.02 CONCRETE MIXES

Ready-mixed concrete shall conform to "Specifications for Ready-Mixed Concrete", ASTM C94.

- A. All concrete mixes shall produce a dense durable concrete. The minimum 28 day compressive strength of the concrete shall be:
- B. 3,000 psi - thrust blocking, sidewalks, curbs and pipe encasement. 4,000 psi - manhole bases and road pavement
- C. Water/cement ratio for the concrete shall not exceed a maximum as shown in Table 4.4 of the ACI Standard 318 latest edition, Building Code Requirements For Reinforced Concrete, when strength data from field experience or trial mixtures are not available. A workable concrete with minimum slump of 3 inches and a maximum slump of 5 inches shall be produced without exceeding the water/ cement ratio.

PART 3: EXECUTION

3.01 FORMWORK

- A. Build all forms mortar tight and of sufficient rigidity to prevent distortion due to the pressure of the concrete and other loads incidental to the construction operations. Construct and maintain forms so as to prevent warping and the opening of joints.
- B. The forms shall be substantial and unyielding. Design the forms so that the finished concrete conforms to the proper dimensions and contours. Design the forms to take into account the effect of the vibration of concrete during placement.

3.02 PLACING REINFORCING STEEL

- A. Place all steel reinforcement accurately in the positions shown on the plans. Secure the steel reinforcements firmly in place during the placing and setting of concrete. When placed in the work, it shall be free from dirt, detrimental rust, loose scale, paint, oil or other foreign material. When spacing between crossing tie bars is one foot more, tie all bars at all intersections. When spacing is less than one foot in each direction tie alternate intersections of bars.
- B. Maintain distances from the forms by means of stays, blocks, ties, hangers or other approved supports. Continuous high chairs will not be permitted. Furnish all reinforcement in full lengths as indicated on the plans. Splicing of bars will not be permitted without the approval of the Engineer, except where shown on the plans. Stagger splices as far apart as possible. Unless otherwise shown on the plans, bars

shall be lapped 36 diameters to make the splice.

- C. Lap welded wire mesh at least 1½ meshes plus end extension of wires but not less than twelve (12) inches in structural slabs. Lap welded wire mesh at least ½ mesh plus end extension of wires but not less than six (6) inches in slabs on the ground.

3.03 CONVEYING AND PLACING CONCRETE

- A. Convey concrete from the mixer to the forms as rapidly as practical by approved methods which will prevent segregation and loss of ingredients.
- B. Clean formwork of dirt and construction debris, drain water, and remove snow and ice. After the forms have been inspected, deposit the concrete in approximately horizontal layers to avoid flowing along the forms. Place all concrete in the dry free from standing water. Deposit all concrete continuously or in layers of a thickness such that no concrete will be deposited on concrete which has hardened sufficiently to cause the formation of seams and planes of weakness within the sections. Place the concrete to create a monolithic structure the component parts of which are securely bonded together. Compact the concrete during placement by suitable means. Work the concrete around the reinforcement and embedded fixtures and into corners and angles of forms, taking care to avoid overworking which may result in segregation.
- C. Do not drop concrete into forms from a height greater than 5 feet. Use a spout to deposit concrete from a greater height; or, provide openings in the forms limit the height of drop. Obtain the approval of the Engineer before using any other method of placing concrete from a height greater than 5 feet.
- D. Direct concrete through chutes to prevent it from striking reinforcement or sides of the form above the level of placement. Avoid segregation and coating of the surfaces with paste which may dry before concrete reaches its level.
- E. Submit a concrete mix design to the Engineer for approval prior to placing any concrete by pumping.

3.04 THRUST BLOCKING

- A. See the thrust blocking details. Notify the Engineer whenever field conditions are noted which are more restrictive than the thrust block design data included on detail drawing 0201-0601-SD6.
- B. Construct blocking against the vertical face of undisturbed earth or sheeting left in place. Prevent the concrete from enclosing more than half the circumference of the pipe unless it is a straddle block. Keep the concrete away from joints or bolts in the

piping.

- C. If thrust blocks are employed, place thrust blocking for hydrants to allow the hydrant to drain.

3.05 PLACING CONCRETE IN COLD WEATHER

- A. Follow the provisions of ACI 306, ACI 308 and Paragraph 3.8 when the ambient temperature is less than 40°F at time of placement or expected to be less than 40°F during the curing period.
- B. Control concrete setting time with the use of accelerating admixtures as required to facilitate placing and finishing operations. Do not use calcium chloride in excess of 2% by weight in the concrete free of steel reinforcement. Where steel reinforcement is employed and concrete with calcium chloride is permitted, contractor must use galvanized or coated steel satisfactory to the Engineer.
- C. Exposed subgrade, formwork and reinforcing shall be warmer than 33°F prior to placement of concrete.
- D. The temperature of the concrete during placing shall be between 55°F and 75°F. Maintain the temperature of the concrete between 55°F and 75°F for a minimum of 5 days by providing insulating blankets, heated enclosures, or other methods of thermal protection. Provide a means of maintaining atmospheric moisture when dry heat is used. Provide proper curing for a minimum of days or as approved by the Engineer.
- E. In case of low air temperatures (below 40°F), submit a plan to comply with this section. The Engineer may, at their discretion, raise the minimum limiting temperatures for water, aggregates and mixed concrete when temperatures drop below 40°F. Protect all earth supported concrete from damage due to frost heave.

END OF SECTION

ILAWC SECTION 15000 - PIPING - GENERAL PROVISIONS

PART 1: GENERAL

1.01 DRAWINGS

- A. Dimensions shown on Contract Drawings are approximate only. Verify all piping geometry in the field and to ensure proper alignment and fit of all piping consistent with the intent of the Contract Drawings. Submit field layout drawings as required for approval.

PART 2: PRODUCTS

2.01 CONTRACTOR'S RESPONSIBILITY FOR MATERIAL

- A. Examine all material carefully for defects. Do not install material which is known, or thought to be defective.
- B. The Engineer reserves the right to inspect all material and to reject all defective material shipped to the job site or stored on the site. Failure of the Engineer to detect damaged material shall not relieve the Contractor from his total responsibility for the completed work if it leaks or breaks after installation.
- C. Lay all defective material aside for final inspection by the Engineer. The Engineer will determine if corrective repairs may be made, or if the material is rejected. The Engineer shall determine the extent of the repairs.
- D. Classify defective pipe prior to Engineer's inspection as follows:
 - 1. Damage to interior and/or exterior paint seal coatings.
 - 2. Damage to interior cement-mortar or epoxy lining.
 - 3. Insufficient interior cement-mortar lining or epoxy thickness.
 - 4. Excessive pitting of pipe.
 - 5. Poor quality exterior paint seal coat.
 - 6. Pipe out of round.
 - 7. Pipe barrel area damaged to a point where pipe class thickness is reduced (all pipe).
 - 8. Denting or gouges in plain end of pipe (all pipe).
 - 9. Excessive slag on pipe affecting gasket seal (DI).
 - 10. Any visible cracks, holes.
 - 11. Embedded foreign materials.
 - 12. Non-uniform color, density and other physical properties along the length of the pipe.

- E. The Contractor shall be responsible for all material, equipment, fixtures, and devices furnished. These materials, equipment, fixtures and devices shall comply with the requirements and standards of all Federal, State, and local laws, ordinances, codes, rules, and regulations governing safety and health.
- F. Take full responsibility for the storage and handling of all material furnished until the material is incorporated in the completed project and accepted by the Engineer. Contractor shall be solely responsible for the safe storage of all material furnished to or by him until incorporated in the completed project and accepted by the Engineer.
- G. Load and unload pipe, fittings, valves, hydrants and accessories by lifting with hoists or skidding to avoid shock or damage. Do not drop these materials. Pipe handled on skidways shall not be skidded or rolled against other pipe. Handle this material in accordance with AWWA C600, C605 or C906 whichever is applicable.
- H. Drain and store fittings and valves prior to installation in such a manner as to protect them from damage due to freezing of trapped water. Drain, store, and protect fittings and valves in accordance with Specification Section 01600.

2.02 PETROLATUM TAPE COATING

- A. The tape coating shall be a cold applied, saturant tape made from either petrolatum or petroleum wax with a noncellulosic synthetic fiber fabric. The fabric shall be encapsulated and coated on both sides with the petrolatum or petroleum wax. The thickness of the tape shall be no less than 40 mil. The petrolatum or petroleum wax shall be at least 50% of the product by weight.
- B. The tape coating shall be supplied in sheets, pads or rolls. Pads and sheets shall be sized to fit the area that is to be covered, allowing for an overlap per AWWA Standards.

2.03 RUBBERIZED-BITUMEN BASED SPRAY-ON UNDERCOATING

- A. Subject to approval by the ENGINEER, an alternative corrosion protection for exposed buried metal is an aerosol applied rubberized coating. The material shall be rapid dry and specifically designed for corrosion protection. 3M Rubberized Underseal Undercoating 08883 or any equivalent rubberized-bitumen based spray-on undercoating may be used. Follow manufacturer's recommendations for storage and application.

PART 3: EXECUTION

3.01 INSTALLATION - GENERAL REQUIREMENTS

- A. Lay and maintain all pipe to the required lines and depths. Install fittings, valves and hydrants in strict accordance with the Specifications at the required locations with joints centered, spigots home, and all valve and hydrant stems plumb. Do not deviate from the required alignment, depth or grade without the written consent of the Engineer.
- B. Buried steel lugs, rods, brackets, and flanged joint nuts and bolts are not permitted unless specifically shown on the drawings or approved in writing by the ENGINEER. Cover any and all buried steel lugs, rods, brackets, and flanged joint nuts and bolts with approved coating in accordance with AWWA Standard C217 prior to backfilling. Encase the same in polyethylene encased if the specifications require polyethylene encasement of the pipe.
- C. Lay all pipe to the depth specified. Measure the depth from the final surface grade to the top of the pipe barrel. The minimum pipe cover shall be as shown on the Drawings or as specified in the Specifications Special Conditions.
- D. Do not lay pipe in a wet trench, on subgrade containing frost, or when trench conditions are unsuitable for such work. If all efforts fail to obtain a stable dry trench bottom and the Engineer determines that the trench bottom is unsuitable for such work, the Engineer will order the kind of stabilization to be constructed, in writing. In all cases, water levels must be at least 6" below the bottom of the pipe. See section 02020, Dewatering.
- E. Thoroughly clean the pipes and fittings before they are installed. Keep these materials clean until the acceptance of the completed work. Lay pipe with the bell ends facing in the direction of laying, unless otherwise shown on the Drawings, or directed by the Engineer. Exercise care to ensure that each length abuts the next in such a manner that no shoulder or unevenness of any kind occurs in the pipe line.
- F. Do not wedge or block the pipe during laying unless by written order of the Engineer.
- G. Before joints are made, bed each section of pipe the full length of the barrel, at the required grade, and at the invert matching the previously laid pipe. Dig bell holes sufficiently large to permit proper joint making. Do not bring succeeding pipe into position until the preceding length is embedded and secure in place.
- H. Take up and relay pipe that is out of alignment or grade, or pipe having disturbed joints after laying. Take up, such in-place pipe sections found to be defective and

replace them with new pipe. Take up, relaying, and replacement will be at the Contractor's expense.

- I. Place enough backfill over the center sections of the pipe to prevent floating. Take all other necessary precautions to prevent the floating of the pipeline by the accumulation of water in the trench, or the collapse of the pipeline from any cause. Place enough backfill over the center sections of the pipe to prevent floating. Should floating or collapse occur, restoration will be at the Contractor's expense.
- J. Bedding materials and concrete work for the pipe bedding and thrust restraint shall be as specified in Divisions 2, 3, and 15 as well as detail drawings.
- K. Prevent foreign material from entering the pipe while it is being placed. Do not place debris, tools, clothing, or other materials in the pipe during laying operations. Close all openings in the pipeline with watertight plugs when pipe laying is stopped at the close of the day's work, or for other reasons such as rest breaks or meal periods.
- L. Only cut pipe with equipment specifically designed for cutting pipe such as an abrasive wheel, a rotary wheel cutter, a guillotine pipe saw, or a milling wheel saw. Do not use chisels or hand saws. Grind cut ends and rough edges smooth. Bevel the cut end slightly for push-on connections as per manufacturer recommendations.
- M. In distributing material at the site of the Work, unload each piece opposite or near the place where it is to be laid in the trench. If the pipe is to be strung out, do so in a straight line or in a line conforming to the curvature of the street. Block each length of pipe adequately to prevent movement. Block stockpiled pipe adequately to prevent movement. Do not place pipe, material, or any other object on private property, obstructing walkways or driveways, or in any manner that interferes with the normal flow of traffic.
- N. Exercise special care to avoid damage to the bells, spigots or flanged ends of pipe during handling, temporary storage, and construction. Replace damaged pipe that cannot be repaired to the Engineer's satisfaction, at the Contractor's expense.
- O. Remove all existing pipe, fittings, valves, pipe supports, blocking, and all other items necessary to provide space for making connections to existing pipe and installing all piping required under this Contract.
- P. Maintain the minimum required distance between the water line and other utility lines in strict accordance with all Federal, State, and local requirements and all right-of-way limitations.

- Q. Provide and install polyethylene encasement for ductile iron pipe as required by the Drawing or Specification Special Conditions. See Specification Section 15130 or 15131, as applicable.
- R. The maximum allowable deflection at the joints for push-on joint pipe shall be the lesser of manufacturer's recommendations or as described in the DIPRA Guideline, *Ductile Iron Pipe Joints and Their Uses*, as follows:

<u>Size of Pipe</u>	<u>Deflection Angle</u>	<u>Maximum Deflection (18-ft. Length)</u>	<u>Maximum Deflection (20-ft. Length)</u>
3"-12"	5 degrees	19"	21"
14"-42"	3 degrees	11"	12"
48"-64"	3 degrees	N/A	12"

- S. Use short lengths of pipe (minimum length 3 feet, no more than three short sections), when approved by the Engineer, to make curves that cannot be made with full length sections of pipe without exceeding the allowable deflection. Making these curves will be at no additional cost to the Owner.
- T. Furnish air relief valve assemblies in accordance with detail drawings provided or as specified in the specification Special Conditions section. Engineer will provide standard detail for additional air release valve assemblies. Any deviation from the standard detail proposed by contractor must be approved in advance.
- U. Exercise particular care so that no high points are established where air can accumulate. Install an air release valve and manhole, as extra Work to the Contract, when the Engineer determines that unforeseen field conditions necessitate a change in the pipe profile that requires the installation of an air release valve and manhole. If the Contractor requests a change in the pipe profile solely for ease of construction, and the requested change requires the installation of an air release valve and manhole as determined by the Engineer, the cost of furnishing and installing the air release valve and manhole will be at the expense of the Contractor.

3.02 CONSTRUCTION METHODS TO AVOID CONTAMINATION

- A. Heavy particulates generally contain bacteria and prevent even very high chlorine concentrations from contacting and killing such organisms. It is essential that the procedures of this Specification Section be observed to assure that a water main and its appurtenances are thoroughly clean for the final disinfection by chlorination.
- B. Take precautions to protect the interior of pipes, fittings, and valves against contamination. String pipe delivered for construction so as to keep foreign material

out of the pipe. Close all openings in the pipeline with watertight plugs when pipe laying is stopped at the close of the day's work or for other reasons, such as rest breaks or meal periods. Use rodent-proof plugs approved by Engineer, where it is determined that watertight plugs are not practical and where thorough cleaning will be performed.

- C. Delay in placement of delivered pipe invites contamination. The more closely the rate of delivery is correlated to the rate of pipe laying, the lower the likelihood of contamination. Complete the joints of all pipe in the trench before stopping work. If water accumulates in the trench, keep the plugs in place until the trench is dry.
- D. When encountering conditions on pre-existing pipe that requires packing, employ yarning or packing material made of molded or tubular rubber rings, or rope of treated paper or other approved materials. Do not use materials such as jute, asbestos, or hemp. Handle packing material in a manner that avoids contamination.
- E. Do not use contaminated material or any material capable of supporting prolific growth of microorganisms for sealing joints. Handle sealing material or gaskets in a manner that avoids contamination. The lubricant used in the installation of sealing gaskets shall be suitable for use in potable water. Deliver the lubricant to the job in closed containers and keep it clean.
- F. If dirt enters the pipe, and in the opinion of the Engineer the dirt will not be removed by the flushing operation, clean the interior of the pipe by mechanical means, then swab with a 1% hypochlorite disinfecting solution. Clean using a pig, swab, or "go-devil" only when the Engineer has specified such and has determined that such operation will not force mud or debris into pipe joint spaces.
- G. If the main is flooded during construction, the flooded section must be isolated from the remainder of the installation as soon as practical. Submit a plan to the Engineer on correcting the condition and do not proceed until authorized by the Engineer. Replace or fully clean and disinfect the affected pipe at no additional cost to the Owner.

3.03 VALVE INSTALLATION

- A. Prior to installation, inspect valves for direction of opening, freedom of operation, tightness of pressure containing bolting, cleanliness of valve ports and especially of seating surfaces, handling damage, and cracks. Correct defective valves or hold for inspection by the Engineer.
- B. Set and join to the pipe in the manner specified in Specification Section 3.01. Provide valves with adequate support, such as crushed stone and concrete pads, so

that the pipe will not be required to support the weight of the valve. Set truly vertical. After field installation of the valve all exposed ferrous restraint materials and external bolts except the operating nut shall receive a layer of petrolatum tape coating or, where approved, rubberized-bitumen based spray-on undercoating applied before backfill. If polyethylene is applied to the pipe, the entire valve shall be encased in polyethylene encasement prior to backfill. The polyethylene encasement shall be installed up to the operating nut leaving the operating nut exposed and free to be operated.

- C. Provide a valve box for each valve. Set the top of the valve box neatly to existing grade, unless directed otherwise by the Engineer. Do not install in a way that allows the transfer shock or stress to the valve. Center and plumb the box over the wrench nut of the valve. Do not use valves to bring misaligned pipe into alignment during installation. Support pipe in such manner as to prevent stress on the valve.
- D. Provide valve marking posts, when authorized by the Owner, at locations designated by the Engineer and in accordance with detail drawings. Payment will be made per post in accordance with supplemental unit price schedule.

3.04 THRUST RESTRAINT

- A. Provide all plugs, caps, tees, and bends (both horizontal and vertical) with concrete thrust blocking and/or restrained joint pipe as represented on the Drawings, or specified in the Specification Special Conditions.
- B. Place concrete thrust blocking between undisturbed solid ground and the fitting to be anchored. Install the concrete thrust blocking in accordance with Specification Section 03300 and standard details provided. Locate the thrust blocking to contain the resultant thrust force while keeping the pipe and fitting joints accessible for repair, unless otherwise shown or directed.
- C. Provide temporary thrust restraint at temporary caps and plugs. Submit details of temporary restraint to the Engineer for approval.
- D. At connections with existing water mains where there is a limit on the time the water main may be removed from service, use metal harnesses of anchor clamps, tie rods and straps; mechanical joints utilizing set-screw retainer glands; or restrained push-on joints as permitted by Engineer. No restraining system can be installed without the approval of the Engineer. Submit details of the proposed installation to the Engineer for approval. For pipe up to 12 inches in size, use a minimum of two 3/4-inch tie rods. If approved for use, install retainer glands in accordance with the manufacturer's instructions. Material for metal harnessing and tie-rods shall be ASTM A36 or A307, as a minimum requirement.

- E. Protection of Metal Harnessing: Protect ties rods, clamps and other metal components against corrosion by hand application of petrolatum tape and by encasement of the entire assembly with 8-mil thick (12 mil thick in corrosive soils) loose polyethylene film in accordance with AWWA C105. Apply tape on all exposed tie rods prior to installing polyethylene.

END OF SECTION

ILAWC SECTION 15020 - DISINFECTING PIPELINES

PART 1: GENERAL

1.01 SCOPE OF WORK

- A. Flush and disinfect all pipelines installed under this Contract if indicated in the summary of work. This would include furnishing the necessary labor, tools, transportation, and other equipment for the operation of valves, hydrants, and blowoffs during the chlorination. Install, and if directed remove, all chlorination taps required for disinfection. The cost of this work shall be included in the bid item for pipe installation. The disinfection will be performed under the supervision of Owner.

1.02 WORK BY OWNER

- A. The Owner reserves the option to provide/furnish the chlorine and chlorination equipment. The Owner will furnish water for testing, flushing and disinfecting pipelines. The Owner or Engineer will also perform bacteriological testing and may collect the sample.

1.03 PROTECTION

- A. Chlorine disinfection and dechlorination shall be under the direct supervision of someone familiar with the physiological, chemical, and physical properties of the form of chlorine used. They shall be trained and equipped to handle any emergency that may arise. All personnel involved shall observe appropriate safety practices to protect working personnel and the public.
- B. The forwards of AWWA Standards B300 and B301 contain information and additional reference material regarding the safe handling of hypochlorites and liquid chlorine. The Contractor shall familiarize himself with this information prior to performing any disinfection work.

1.04 REFERENCES

- A. Refer to current AWWA Standard for Disinfecting Water Mains C651.

PART 2: PRODUCTS

2.01 MATERIALS AND EQUIPMENT

- A. Furnish liquid chlorine and injection equipment and/or calcium hypochlorite (HTH) as needed to disinfect all pipelines and appurtenances.
- B. Liquid chlorine contains 100% available chlorine and is packaged in steel containers, usually of 100 lb, 150 lb, or 1 ton net chlorine weight. Liquid chlorine is to be furnished in accordance with AWWA B301.
- C. Calcium hypochlorite is available in granular form or in approximately 5-g tablets, and contains approximately 65% available chlorine by weight. The material should be stored in a cool, dry, and dark environment to minimize its deterioration. Do not use calcium hypochlorite intended for swimming pool disinfection, as this material (containing trichloroisocyanuric acid) has been sequestered and is extremely difficult to eliminate from the pipe after the desired contact time had been achieved.
- D. Calcium hypochlorite must conform to AWWA B300.

PART 3: EXECUTION

3.01 PREPARATION

- A. All pipelines shall be pressure and leak tested, flushed, and cleaned of debris and dirt prior to application of the disinfectant. Flushing shall continue until the volume in the newly installed main has turned over at least one time unless the Engineer determines that conditions do not permit the required volume to be safely discharged to waste.

3.02 APPLICATION OF DISINFECTANT

- A. Methods to be used for disinfection are those detailed in ANSI/AWWA C651 Disinfecting Water Mains.

3.03 WATER MAINS

- A. Three (3) methods of chlorination are described below. The third method, using tablets of hypochlorite, is only permitted by expressed approval of the Engineer and under no circumstance allowed for projects of 2000 feet or more. Otherwise, information in the forward of AWWA Standard C651 will be helpful in determining the best method to be used.

Continuous Feed Method

1. Set up

The continuous feed method consists of completely filling the main to remove all air pockets, flushing the completed main to remove particulates, and then refilling the main with chlorinated potable water. The potable water shall be chlorinated, so that after a 24-hour holding period in the main, there will be a free chlorine residual of not less than 10 mg/L in collected samples.

Chlorine can be applied in advance of preliminary flushing by swabbing joints with bleach or placing hypochlorite granules in the pipe in areas where contamination is suspected. In any such case, the contractor shall make sure and take appropriate action to make sure that the flushed water is dechlorinated.

Preliminary flushing. Prior to being chlorinated, fill the main to eliminate air pockets and flush to remove particulates. The flushing velocity in the main shall be not less than 2.5 fps unless the Engineer determines that conditions do not permit the required flow to be discharged to waste. Table 1 shows the rates of flow required to produce a velocity of 2.5 fps in pipes of various sizes.

NOTE: Flushing is no substitute for preventive measures during construction. Certain contaminants such as caked deposits resist flushing at any feasible velocity.

TABLE 1
 Required Flow and Openings to Flush Pipelines
 (40 psi Residual Pressure in Water Main)*

Pipe Diameter (inches)	Flow required to produce 2.5 fps velocity in main (gpm)	Size of Tap. (inches)			Number of 2-1/2 in. Hydrant Outletsto Use
		1	1-1/2	2	
4	100	1	-	-	1
6	200	-	1	-	1
8	400	-	2	1	1
10	600	-	3	2	1
12	900	-	-	2	2
16	1600	-	-	4	2

*With a 40 psi pressure in the main with the hydrant flowing to atmosphere, a 2½-inch hydrant outlet will discharge approximately 1,000 gpm and a 4½-inch hydrant outlet will discharge approximately 2,500 gpm.

† Number of taps on pipe based on discharging through 5 feet of galvanized iron pipe with one 90 degree elbow.

In mains of 24-inches or larger diameter, an acceptable alternative to flushing is to broom-sweep the main, carefully removing all sweepings prior to chlorinating the main.

2. Chlorinating the Main.

- a. Flow water from the existing distribution system or other approved source of supply at a constant, measured rate into the newly laid water main. In the absence of a meter, approximate the rate by placing a pitot gauge in the discharge or measuring the time to fill a container of known volume.
- b. At a point not more than 10 feet downstream from the beginning of the new main, dose the water entering the new main with chlorine fed at a constant rate such that the water will have not less than 25 mg/L free chlorine. Measure the chlorine concentration at regular intervals to ensure that this concentration is provided. Measure chlorine in accordance with the procedures described in the current edition of the AWWA Manual M12 or of *Standard Methods for the Examination of Water and Wastewater*.
- c. Table 2 gives the amount of chlorine required for each 100 feet of pipe of various diameters. Solutions of 1 percent chlorine may be prepared with calcium hypochlorite. The solution requires 1 pound of calcium hypochlorite in 8 gallons of water.

TABLE 2
 Chlorine Required to Produce 25 mg/L
 Concentration in 100 feet of Pipe by Diameter

Pipe Diameter inches	100 Percent Chlorine lbs	1 Percent Chlorine Solutions gallons
4	0.013	0.16
6	0.030	0.36
8	0.054	0.65
10	0.085	1.02
12	0.120	1.44
16	0.217	2.60

- d. During the application of chlorine, position valves so that the strong chlorine solution in the main being treated will not flow into water mains in active service. Do not stop the chlorine application until the entire main is filled with heavily chlorinated water. Keep the chlorinated water in the main for at least 24 hours. During this time, operate all valves and hydrants in the section treated in order to disinfect the appurtenances. At the end of this 24-hour period, the treated water in all portions of the main shall have a residual of not less than 10 mg/L free chlorine.

- e. Hypochlorite solution may be applied to the water main with a gasoline or electrically powered chemical feed pump designed for feeding chlorine solutions. Feed lines shall be of such material and strength as to safely withstand the corrosion caused by the concentrated chlorine solutions and the maximum pressures that may be created by the pumps. Check all connections shall for tightness before the solution is applied to the main.

- f. If gaseous chlorine in solution is permitted by the Engineer and proposed by the contractor, the preferred equipment for the gas application employs a feed vacuum-operated chlorinator to mix the chlorine gas, in combination with a booster pump for injecting the chlorine gas solution water into the main to be disinfected. Direct feed chlorinators cannot be used. (A direct feed chlorinator is one which operates solely from the pressure in the chlorine cylinder.)

Slug Method

1. Setup

- a. The slug method consists of placing calcium hypochlorite granules in the main during construction; completely filling the main to eliminate all air pockets, flushing the main to remove particulates, and slowly flowing a slug of water containing 100 mg/L of free chlorine through the main so that all parts of the main and its appurtenances will be exposed to the highly chlorinated water for a period of not less than 3 hours.

2. Chlorinating the main.

- a. At the option of the OWNER, place calcium hypochlorite granules in the main during construction. The purpose of this procedure is to provide a strong chlorine concentration in the first flow of flushing water especially to fill annular spaces in pipe joints. Flush the main to eliminate air and remove particulates to include management of dechlorination and discharged water.
- b. At a point not more than 10 feet downstream from the beginning of the new main, dose the water entering the new main with chlorine fed at a constant rate such that the water will have not less than 100 mg/L free chlorine. Measure the chlorine concentration at regular intervals to ensure that this concentration is provided. Measure chlorine in accordance with the procedures described in the current edition of the AWWA Manual M12 or of *Standard Methods for the Examination of Water and Wastewater*. The chlorine shall be applied continuously and for a sufficient period to develop a solid column or "slug" of chlorinated water that will, as it moves through the main, expose all interior surfaces to a concentration of approximately 100 mg/L for at least 3 hours.
- c. The free chlorine residual shall be measured in the slug as it moves through the main. If at any time it drops below 50 mg/L, stop the flow, relocate the chlorination equipment to the head of the slug, and as flow is resumed, apply chlorine to restore the free chlorine in the slug to not less than 100 mg/L.
- d. As the chlorinated water flows past fittings and valves, operate related valves and hydrants so as to disinfect appurtenances and pipe branches.

Tablet Method

1. Setup

- a. The tablet method consists of adhering calcium tablets in the water main as it is being installed and then filling the main with potable water when installation is completed. This method may be used only if the pipes and appurtenances are kept clean and dry during construction and with permission by the Engineer for short main installations.

2. Chlorinating the Main –

- a. Placing of calcium hypochlorite tablets - *Placing of calcium hypochlorite tablets.* During construction, 5-g calcium hypochlorite tablets shall be placed in each section of pipe. Also, one such tablet shall be placed in each hydrant, hydrant branch, and other appurtenance. The number of 5-g tablets required for each pipe section shall be $0.0012 d^2L$ rounded to the next higher integer, where d is the inside pipe diameter, in inches, and L is the length of the pipe section, in feet. Table 1 shows the number of tablets required for commonly used sizes of pipe. The tablets shall be attached by a food-grade NSF approved adhesive. There shall be no adhesive on the tablet except on the broadside attached to the surface of the pipe and no adhesive applied or spilled on the pipe surface. Excess adhesive must be removed immediately using mechanical means or an NSF approved adhesive solvent. Attach all the tablets inside and at the top of the main, with approximately equal numbers of tablets at each end of a given pipe length. If the tablets are attached before the pipe section is placed in the trench, their position shall be marked on the section so it can be readily determined that the pipe is installed with the tablets at the top.

		Length of Pipe Section, ft (m)				
Pipe Diameter		13(4.0) or less	18(5.5)	20(6.1)	30(9.1)	40(12.2)
<i>in.</i>	<i>(mm)</i>	Number of 5-g Calcium Hypochlorite Tablets				
6	(150)	1	1	1	2	2
8	(200)	1	2	2	3	4
12	(300)	3	4	4	6	7
16	(400)	4	6	7	10	13

- b. *Filling and contact.* When installation has been completed, the main shall be filled with water at a rate such that water within the main will flow at a velocity no greater than 1 ft/s (0.3 m/s). Precautions shall be taken to ensure that air pockets are eliminated. This water shall remain in the pipe for at least 24 hours. If the water temperature is less than 41°F (5°C), the water shall remain in the pipe for at least 48 hours.

3.04 DISPOSAL OF HEAVILY CHLORINATED WATER

- A. Do not keep heavily chlorinated water in contact with pipe for more than 48 hours after the applicable retention period. In order to prevent damage to the pipe lining or corrosion damage to the pipe itself, flush the heavily chlorinated water from the main fittings, valves, and branches until chlorine measurements show that the concentration in the water leaving the main is no higher than that generally prevailing in the system or is acceptable for domestic use. Take all steps necessary to dechlorinate water where required per section 3.04B and 3.04C below. Contact the local sewer department to arrange for disposal of the heavily chlorinated water to the sanitary sewer if applicable.
- B. Neutralize the chlorine residual of the water being disposed of by treating with one of the chemicals listed in Table 3. Select an alternative disposal site if a sanitary sewer system is unavailable for disposal of the chlorinated water.
- C. The proposed alternative disposal site shall be inspected and approved of by the Engineer. Apply a reducing agent to the chlorinated water to be wasted to completely neutralize the chlorine residual remaining in the water. (See Table 3 for neutralizing chemicals. Do not overdose neutralizing chemicals as this may result in adverse environmental impacts. Only dose the amount required to neutralize the amount of chlorine present). Contact federal, state and local regulatory agencies, where necessary, to determine special provisions for the disposal of heavily chlorinated water.

Table 3
 Pounds of chemicals required to neutralize various
 residual chlorine concentrations in 100,000 gallons of water.

Residual Chlorine Concentration	Sulfur Dioxide	Sodium Bisulfite	Sodium Sulfite	Sodium Thiosulfate	Ascorbic Acid
<u>mg/L</u>	<u>(SO₂)</u>	<u>(NaHSO₃)</u>	<u>(Na₂SO₃)</u>	<u>(Na₂S₂O₃ · 5H₂O)</u>	<u>(C₆O₈H₆)</u>
1	0.8	1.2	1.4	1.2	2.1
2	1.7	2.5	2.9	2.4	4.2
10	8.3	12.5	14.6	12.0	20.9
50	41.7	62.6	73.0	60.0	104.0

- D. Test for chlorine residual throughout the disposal process to be sure that the chlorine is neutralized
- E. Submit a plan of disposal of flushed water to the Engineer for approval

3.05 BACTERIOLOGICAL TESTING

- A. After final flushing and before the water main is placed in service, the new main needs to be sampled. If the first sample collected passes, then no further sampling is needed for that section of main as long as no samples fail between the water source and the sample collected. At least one set of samples shall be collected from every 1,200 feet, of the new water main, plus one set from the end of the line and at least one set from each branch when possible or as required by regulatory requirements and as directed by IAWC.
 - 1. If the first sample fails, then two consecutive sets of acceptable samples need to be collected from the new main. The second set of samples must be taken at least 24 hours after the first set of samples. The main should be flushed between collection of the first and second set of samples to clean the main before collecting the second sample.
- B. Samples shall be collected by a person knowledgeable in collecting samples for bacteriological sampling or arrange for the Owner to collect the sample. Coordinate with Owner and submit samples to the Owner for testing of bacteriological (chemical and physical) quality. Testing will be in accordance with Standard Methods of the Examination of Water and Wastewater. Samples shall show the absence of coliform organisms; and the presence of a chlorine residual. Samples shall also be tested for turbidity, pH, and standard heterotrophic plate count (HPC). HPC levels must be consistent with levels normally found in the distribution system to which the new

main is connected.

- C. Bacteriological tests must show complete absence of coliforms and acceptable HPCs. If tests show the presence of coliform or unacceptable HPCs, perform additional flushing and disinfection of the pipeline until acceptable tests are obtained, all at no cost to the Owner. The Contractor will not be charged for the additional testing performed by the Owner.

3.06 RETESTING AND TESTING SOURCE WATER

- A. At the time of initial flushing the main to remove material and test for air pockets, Contractor may request the Owner to continue flushing until the desired chlorine residual is met at the discharge point. Notification must be provided in advance and the Contractor shall be prepared to test for chlorine at intervals of no more than five minutes as the water clears. This will provide the Contractor with some assurance that the source water is chlorinated.
- B. If the subsequent tests for bacteriological contamination conducted by the Contractor fail, the Contractor may request the Owner to continue flush from the source water into the new pipe system until a chlorine residual is found at the discharge point. Notification must be provided in advance and the Contractor shall be prepared to test for chlorine at intervals of no more than five minutes as the water clears. The operation of all existing system valves shall be by the Owner at the Contractor expense and the discharge point must be opened prior to opening existing valves to avoid contamination. This will provide the Contractor with some assurance that the source water is chlorinated for subsequent tests.

END OF SECTION

ILAWC SECTION 15025 - CLEANING PIPELINES

PART 1: GENERAL

1.01 SCOPE OF WORK

- A. Clean the pipelines installed under these Contract Documents using foam pigs, swabs, or "go devils", as described herein, whenever normal flushing will not sufficiently remove dirt and debris that was introduced during construction.

1.02 GENERAL

- A. Normal pipeline flushing is often inadequate to remove all the entrapped air, loose debris, and other objects that may have been left in the main during installation. In such cases, use polyurethane foam pigs and/or polyurethane hard foam swabs to remove all foreign matter from the pipeline (i.e. "pig" the pipeline). Clean the pipeline per the requirements of this Specification Section prior to testing and disinfecting the main.

1.03 PROTECTION DURING FLUSHING AND CLEANING

- A. Coordinate with Engineer and Owner before flushing to ensure that an adequate volume of flushing water is available, at sufficiently high pressure. Determine if the water can be disposed of safely. Notify the Owner, Engineer, and the following prior to flushing, or cleaning:
 - a. Fire Department
 - 1. Other utilities, such as gas, electric and telephone companies, who may have underground facilities in the area.
 - 2. Customers who may be inconvenienced by reduced pressure or dirty water.
- B. Coordinate with Owner to isolate the section to be flushed from the operating distribution system. Close valves slowly to prevent water hammer. Open the fire hydrant or blow-off valve slowly until the desired flow rate is obtained. When flushing from a dry barrel fire hydrant, use the gate valve upstream of the hydrant for throttling purposes. Open the hydrant valve fully to prevent water from escaping into the ground through the fire hydrant barrel drain.
- C. Protect the work staff and the public during operation of hydrants and valves. Keep children away from the flow of flushing water. Where practical employ energy dissipators to help avoid damage to property and the flooding of streets. The safety considerations also apply to main cleaning. See General Conditions Article 6.

PART 2: PRODUCTS

2.01 MATERIALS AND EQUIPMENT

- A. Furnish the foam cleaning plugs (swabs or pigs), labor, and equipment as needed to pig all pipelines. Furnish all materials required for the expulsion of air and other debris from pipelines. Do not use of pipe cleaning plugs which utilize Bristles, wire brushes, carbide abrasives, steel studs, or any other Type abrasive unless specifically approved by the Engineer. Consult a manufacturer of pipe cleaning plugs, such as Knapp Polly Pig (Houston, Texas), to determine the type and size of cleaning plug best suited for the application. Two types of plugs shall be considered and are described as follows:

1. Swabs

Swabs used for cleaning mains shall be made of polyurethane foam. This foam has a density of 1 to 2 pounds per cubic feet. Swabs shall be purchased from commercial manufacturers of swabs for pipes. Both soft and hard grade foam swabs available. New mains typically cleaned with hard foam swabs.

Use swabs cut into cubes and cylinders slightly larger than the size of the pipe to be cleaned. Cubes one inch larger in dimension than the nominal diameter of the pipe being cleaned have worked well for cleaning pipes up to 12-inches in diameter. For mains greater than 12-inches in diameter, the swab diameter must be considered individually for each operation. For new mains, swabs 3-inches larger than the pipe diameter have worked well. Swabs for the larger mains are usually 1-1/2 times the diameter in length.

2. Pigs

The other type of cleaning plug available is called a pig. Pigs, if used, shall be commercially manufactured for the specific purpose of cleaning pipes. They shall be made of polyurethane foam weighing 2 to 15 lb./cu.ft. Pigs are bullet shaped and come in various grades of flexibility and roughness. Pigs are typically 1/4 -inch to 1/2-inch larger in diameter than the pipe to be cleaned.

PART 3: EXECUTION

3.01 PLUG INSTALLATION AND REMOVAL

- A. Furnish all equipment, material, and labor to satisfactorily expose cleaning wyes, or other entry or exit points. Remove cleaning wye covers, etc., as required by the Engineer to insert the plugs into the mains.

- B. If approved by the Engineer, stripped fire hydrants, air valves and blow-offs may serve as entry and exit points for smaller sized mains. The Engineer will examine these appurtenances and the connecting laterals to ensure that adequate openings exist through which a plug may be launched.
- C. If these appurtenances are used, a special launcher is required to ease the insertion and launching of the plug. If available, a pressurized water source such as a fire hydrant can be used to launch the plug. If water from the system is not available nearby, use a water truck with pump.
- D. If hydrants are used as entry and/or exit points, remove the internal mechanisms and plug the drains under the supervision of the Engineer. Insert the plug and replace the cap with a special flange with a 2-1/2-inch fitting. Connect the 2-1/2-inch fitting, with a pressure gauge and valve, to a pressurized water source. After closing the last valve isolating the section to be cleaned, open the hydrant supply valve. Propel the swab or pig into the main by opening the exit valve.
- E. In mains greater than 8-inches, wyes shall be used at the entry and exit points. Fabricate the wye section one size larger than the main to ease the insertion and extraction of the plug. The use of wyes, as with the previously mentioned appurtenances, requires an outside source of pressurized water for launching. Cap the wye with a flange with a 2 to 6 inch fitting for connecting to the pressurized water source.
- F. Many pigs are harder to insert into a pipe since they are less flexible than swabs. Other methods acceptable to insert pigs include:
 - 1. winching with a double sling,
 - 2. winching with a rope attached to the pig,
 - 3. compression with a banding machine prior to insertion, and
 - 4. the use of a specially designed tapered steel pipe which is removed after use.
- G. During swab or pig installation, leave as much water as possible in the main to be cleaned. The water suspends the material being removed from the pipe and minimizes the chance of the material forming a solid plug. Water in the pipe also keeps the swab or pig from traveling through the pipe at excessive rates. If swabs or pigs travel too fast, they will remove less material and wear more rapidly.
- H. At the exit point or blow-off, install a wye long enough to house the swab or pig. Attach temporary piping to the end cap to allow the drainage of the water.
- I. Take precautions to prevent backflow of purged water into the main when the cleaning plug exits through a dead end main. This can be accomplished by installing mechanical joint bends and pipe joints to provide a riser out of the trench. Additional

excavation of the trench may serve the same purpose.

3.02 PRE-CLEANING PROCEDURES

- A. Prepare a written cleaning plan for the Engineer's review,
- B. Suggested pre-cleaning procedures include:
 - 1. Identify mains to be cleaned on a map. Mark the location of the entry, water supply, exit points, any blow-offs to be used, valves to be closed, and the path of the swab or pig.
 - 2. Under the Engineer's supervision and with Owner staff as required, inspect and operate all valves and hydrants to be used in the cleaning operation to ensure their correct operation and a tight shutdown.
 - 3. Check location and type of hydrants, launch and exit location, and blow-offs to be used. Make blow-off tap connections, if necessary.
 - 4. The Owner will notify customers served by the main to be cleaned that their water will be off for a specified period of time on the day of the cleaning.
 - 5. The Owner will identify customers who may require temporary services during the main cleaning operation. The Contractor shall provide the temporary connections.
 - 6. Determine the number and size of plugs to be used.

3.03 CLEANING PROCEDURE

Clean the pipeline using the following procedures and the Contractor's cleaning plan, as approved by the Engineer.

- A. Swab Cleaning Procedures
 - 1. Open the water supply upstream of the swab. Throttle the flow in the main at the discharge (plug exit) point so that the swab passes through the main at a speed of 2 to 4 fps. (At this velocity, swabs will effectively clean pipes for distances of up to 4,000 feet before disintegrating to a size smaller than the main.) Use pitot gauges at the exist hydrant or blow-off to estimate the flowrate in the main.
 - 2. Note the time of entry of the swab into the main and estimate its time of exit.

If the swab does not reach the exit point in the estimated time plus ten minutes, then a blockage has probably occurred. Reverse the flow in the main and note the time required for the swab to reach the original entry point. From the return travel time, estimate the location of the blockage. The Engineer may require the use of a swab containing a transmitter to accurately locate the blockage.

3. Swab repeatedly as needed. Stop swabbing when the water behind the swab emerging at the exit clears up within one minute. Account for all swabs inserted into the main.
4. After the last swab has been recovered, flush the main to remove swab particles. This may require up to an hour of flushing.

B. Pig Cleaning Procedures

1. Remove all air valves along the line. Insure that each isolating valves to the air release valve are completely closed. Operate system to prevent undesired build up of air while air release valves are out of service.
2. If the pig is inserted directly into the main, set it in motion by opening the upstream gate valve and a downstream fire hydrant or blow-off valve (usually the valve on the capped end at the exit point). If the pig is launched from a wye, fire hydrant, or other appurtenance, use an external pressurized water source to inject the pig into the main as described in Section 3.01.
3. Once the pig is launched, control its speed by throttling the discharge at a downstream fire hydrant or blow-off. Operate pigs at the typical speed of 1 fps. This slow speed will help prevent pressure surges when the pig passes through undersized valves, enters smaller pipes, or turns through tees or crosses. Speeds of up to 2 fps. can be used on straight runs with no restrictions or sharp turns.
4. Make sufficient passes of the pig to obtain thorough cleaning. Two pigs may be used in tandem to save time and water. Sufficient cleaning is established when the water discharging after the pig becomes clear within one minute.

3.04 POST CLEANING PROCEDURE

- A. After successful cleaning; test, flush, and disinfect the main in accordance with applicable sections of these Specifications.

END OF SECTION

ILAWC SECTION 15030 - PRESSURE AND LEAKAGE TESTS

PART 1: GENERAL

1.01 SCOPE OF WORK

- A. Test all piping, valves, and appurtenances installed under these Contract Documents. Testing shall be performed concurrent with installation. Do not install more than 1,200 feet of pipe without being tested, unless approved by the Engineer.

1.02 SUBMITTALS

- A. Prepare and submit schedules and procedures to the Engineer for testing of all parts of the water main installed in accordance with these Contract Documents. Submit the schedule at least seven days prior to any testing.

PART 2: PRODUCTS

2.01 EQUIPMENT

- A. Furnish the pump, pipe connections, and all necessary apparatus for the pressure and leakage tests including gauges and metering devices. The Owner reserves the option to furnish the gauges and metering devices for the tests. Excavate, backfill, and furnish all necessary assistance for conducting the tests.

PART 3: EXECUTION

3.01 GENERAL

- A. Perform hydrostatic pressure and leak tests in accordance with AWWA C600, Section 4 - Hydrostatic Testing after the pipe or section of pipe has been laid, thrust blocking cured (min. 5 days), and the trench is completely or partially backfilled. Where practical, testing shall be performed fully isolated from the active distribution system.
- B. The Contractor may, at his option, completely backfill the trench or partially backfill the trench over the center portion of each pipe section to be tested. However, the Engineer may direct the Contractor to completely backfill the trench if local traffic or safety conditions require.

- C. For system operating pressures of 200 psi or less, perform the hydrostatic test at a pressure of 140 psi without exceeding the rating of the pipe and appurtenances, but no more than the design rating of the pipe. Pressure test must be maintained for 2 hours.
- D. Valves shall not be operated in either direction at a differential pressure exceeding the rated valve working pressure. A test pressure greater than the rated valve working pressure can result in trapped test pressure between the gates of a double-disc gate valve. For tests exceeding the rated valve working pressure, the test setup should include a provision, independent of the valve, to reduce the line pressure to the rated valve working pressure on completion of the test. The valve can then be opened enough to equalize the trapped pressure with the line pressure, or the valve can be fully opened if desired.
- E. The test pressure shall not exceed the rated working pressure or differential pressure of the valves when the pressure boundary of the test section includes closed, resilient-seated gate valves or butterfly valves.
- F. Attach a tapping sleeve and valve assembly to the main. Pressure test the assembly prior to making the tap. The required test pressure shall be determined in the same manner as for pipe. The test is acceptable if there is no pressure drop in 15 minutes at test pressure.

3.02 FILLING AND TESTING

- A. Slowly fill each segregated section of pipeline with water ensuring that all air is expelled. Extreme care must be taken to ensure that all air is expelled during the filling of pipe. The line shall stand full of water for at least twenty-four hours prior to testing to allow all air to escape. If necessary, tap the main at points of highest elevation to expel air as the pipe is filled. Remove the corporation stops and plug the taps after successfully filling the pipeline and expelling all air as approved by the Engineer.
- B. Apply the specified test pressure, measured at the point of lowest elevation, using a pump connected to the pipe in a manner satisfactory to the Engineer. If the elevation of the high point of the pipeline being tested is such that the pressure during testing will be below 85% of the required test pressure, the Engineer will require a separate test to be performed on this section of pipeline. In lieu of a separate test, the test pressure measured at the lowest elevation may be increased, within the pressure rating of the pipeline material, such that the resulting pressure at the highest point exceeds 85% of the required test pressure. The test will be conducted for at least two hours at the required test pressure \pm 5 psi.

- C. Conduct a leakage test concurrently with the pressure test. Leakage is defined as the volume of the water that must be supplied into the newly laid pipeline to maintain pressure within 5 psi of the test pressure after it is filled and purged of air. Measure the volume of water using a calibrated container or meter.
- D. No pipeline installation will be accepted by the Engineer if the leakage is greater than that shown in the following table:

Allowable Leakage per 1000 ft. of Pipeline*---gph

Avg. Test Pressure psi	Nominal Pipe Diameter---in.													
	4	6	8	10	12	14	16	18	20	24	30	36	42	48
450	0.57	0.86	1.15	1.43	1.72	2.01	2.29	2.58	2.87	3.44	4.30	5.16	6.02	6.88
400	0.54	0.81	1.08	1.35	1.62	1.89	2.16	2.43	2.70	3.24	4.05	4.86	5.68	6.49
350	0.51	0.76	1.01	1.26	1.52	1.77	2.02	2.28	2.53	3.03	3.79	4.55	5.31	6.07
300	0.47	0.70	0.94	1.17	1.40	1.64	1.87	2.11	2.34	2.81	3.51	4.21	4.92	5.62
275	0.45	0.67	0.90	1.12	1.34	1.57	1.79	2.02	2.24	2.69	3.36	4.03	4.71	5.38
250	0.43	0.64	0.85	1.07	1.28	1.50	1.71	1.92	2.14	2.56	3.21	3.85	4.49	5.13
225	0.41	0.61	0.81	1.01	1.22	1.42	1.62	1.82	2.03	2.43	3.04	3.65	4.26	4.86
200	0.38	0.57	0.76	0.96	1.15	1.34	1.53	1.72	1.91	2.29	2.87	3.44	4.01	4.59
175	0.36	0.54	0.72	0.89	1.07	1.25	1.43	1.61	1.79	2.15	2.68	3.22	3.75	4.29
150	0.33	0.50	0.66	0.83	0.99	1.16	1.32	1.49	1.66	1.99	2.48	2.98	3.48	3.97
125	0.30	0.45	0.60	0.76	0.91	1.06	1.21	1.36	1.51	1.81	2.27	2.72	3.17	3.63
100	0.27	0.41	0.54	0.68	0.81	0.95	1.08	1.22	1.35	1.62	2.03	2.43	2.84	3.24

*If the pipeline under test contains sections of various diameters, the allowable leakage will be the sum of the computed leakage for each size. The table has been generated from the formula: $L = \frac{S \cdot D \cdot P^{1/2}}{148,000}$

where L is the allowable leakage in gallons per hour, S is the length of pipe in feet, D is the nominal pipe diameter in inches, and P is the test pressure in psig.

- E. Should any test disclose damaged or defective materials or leakage greater than that permitted, the Contractor shall, at Contractor's expense, locate and repair and/or replace the damaged or defective materials. Materials used for repair must be approved by the Engineer and meet the specifications. Repeat the tests until the leakage is within the permitted allowance and is satisfactory to the Engineer.

END OF SECTION

ILAWC SECTION 15131 - PIPING SPECIALTIES
(Contractor Furnished)

PART 1: GENERAL

1.01 SCOPE

- A. This Specification Section covers the furnishing and installation of miscellaneous piping specialties as shown on the Drawings or as required to fulfill the intent of the project.

PART 2: PRODUCTS

2.01 POLYETHYLENE ENCASUREMENT

- A. Polyethylene encasement shall conform to AWWA Standard C105. The polyethylene film supplied shall be translucent and blue in color (or as specified in section 01011) and distinctly marked (at minimum 2 foot intervals) with the following information:
1. manufacturer's name (or trademark),
 2. year manufactured,
 3. minimum film thickness and material type (LLDPE or HDCLPE),
 4. range of nominal pipe diameter size,
 5. ANSI/AWWA C105/A21.5 (compliance)
 6. A warning "WARNING-CORROSION PROTECTION-REPAIR ANY DAMAGE
 7. labeled "WATER"
- B. Tape shall be polyethylene compatible adhesive and a minimum of 1.5" wide. Shall be Scotchwrap #50, Fulton #355, or Polyken #900.
- C. Store all polyethylene encasement out of the sunlight. Exposure of wrapped pipe should be kept to a minimum.
- D. Acceptable suppliers of polyethylene encasement
1. AA Thread Seal Tape, Inc.
1275 Kyle Court
Wauconda, IL 60084
 2. SIGMA Corporation
700 Goldman Drive
Cream Ridge, NJ 08514

3. Peistrup Paper Products
 1185 Research Blvd
 St. Louis, MO 63132

2.02 VALVE BOXES

- A. All valves shall be provided with valve boxes of a design approved by the Engineer. Valve boxes shall be of the standard, adjustable, cast iron extension type, multiple piece, 5-1/4-inch shaft, screw type, and of such length as necessary to extend from the valve to finished grade. Cast iron valve boxes shall be hot coated inside and out with an asphaltic compound.
- B. Valve boxes shall be manufactured by one of the following “approved manufacturers: Bingham & Taylor, Mueller, Handley Industries, A.Y. McDonald, Quality Water Products, or Clay and Bailey.
- C. Valve box bases shall conform to the following:

<u>Valve Size</u>	<u>Base</u>
4" and smaller	round, 8" in height, 10-7/8" diameter at bottom
6" and 8"	round, 11" in height, 14-3/8" diameter at bottom
10" and larger	oval, 11" in height, 15" x 11-1/8" diameter at bottom

2.03 RODS, BOLTS, LUGS AND BRACKETS

- A. All steel rods, bolts, lugs and brackets, shall be ASTM A36 or A307 carbon steel with xylan coating as a minimum requirement. The bolts shall have American Standard heavy unfinished hexagonal head and nut dimensions all as specified in ANSI B18.2. Xylan or FluoroKote #1 T-Bolts, corrosion resistant to handle corrosive conditions shall be used on any buried flanged bolts.
- B. After field installation, all steel surfaces shall receive a petrolatum wax tape coating in accordance with AWWA Standard C217. Suppliers include, but are not limited to, Tapecoat® Envirotape® and Denso Densyl Tape. Surface preparation and tape installation shall be in accordance with ASTM C217 and the manufacturer’s recommendations. Subject to approval by the ENGINEER, an alternative corrosion protection for exposed buried metal is an aerosol applied rubberized coating. The material shall be rapid dry and specifically designed for corrosion protection. 3M Rubberized Underseal Undercoating 08883 or any equivalent rubberized-bitumen

based spray-on undercoating may be used. Follow manufacturer's recommendations for storage and application.

2.04 RETAINING GLANDS

- equal.
- A. All retaining glands shall be ductile iron with ductile iron set screws. Pressure ratings for use with ductile iron pipe shall be a minimum of 250 psi. Retainer Glands shall be coated with electrostatically applied baked-on polyurethane coating or approved Locking wedges, bolts, and set screws shall be coated with Xylan or FluoroKote
 - B. Retaining glands shall be manufactured by one of the following "approved manufacturers."
EBBA Iron, Inc.
PO Box 857
Eastland Texas 76448

2.05 TEST /TRACER BOXES

- A. All test/tracer boxes shall be 18" plastic box flared and squared at base and have a 4" I.D. with a 1 ½" cast iron flange. Lid shall be a one piece locking lid with "Test Station" marked on lid and shall contain 5 screw-type brass terminals on a non conductive terminal board.
- B. Test/tracer boxes shall be manufactured by one of the following "approved manufacturers":

Handley Industries, Inc.
2101 Brooklyn Rd.
Jackson, MI 49203
Model T-45

2.06 MARKING POSTS

- A. All marking posts shall be Rhino FiberCurve™ with PolyTechCoating or equivalent fiber-composite marking posts. The color shall be standard blue for water and the length shall be a minimum 66-inches. The decals be UV stable all weather type with a no dig symbol and white and contrasting white and blue vertical lettering: Butterfly and Gate Valves decals (Rhino GD-5226C) Blow-Offs decals (Rhino GD-5411C) Pipeline decals (Rhino GD-1333C).
- B. Marking Posts shall be manufactured by one of the following "approved manufacturers":

Rhino
280 University Drive Southwest
Waseca, MN 56093
1-800-522-4343

Carsonite International
605 Bob Gifford Boulevard
Early Branch, SC 29916
1-800-648-7916

PART 3: EXECUTION

3.01 INSTALLATION

- A. Install “piping specialties” in accordance with the general provisions provided in the following:

Polyethylene Encasement

1. Encase piping in polyethylene as required to prevent contact with surrounding backfill and bedding material in all areas shown on the plans or designated by the Engineer. Polyethylene shall be 12 mils.
2. Install the polyethylene wrap material in accordance with the DIPRA Field Polyethylene Installation Guide and AWWA Standard C105. Polyethylene shall fit snugly and not tightly stretched. All holes or tears shall be repaired with tape. Large holes or tears shall be repaired by taping another piece of polyethylene over the hole. Tape or plastic tie straps at joint overlaps and at every 3 foot interval.
3. Dig bell holes and slide polywrap over the adjacent pipe and provide a minimum of 1 foot of overlap. Tightly secure bottom of polywrap using two to three passes of polyethylene tape on the pipe to polywrap connection and the overlap polywrap to polywrap connection.
4. Where polyethylene wrapped pipe being installed connects to a pipe that is not wrapped (including existing pipe), extend the wrap a minimum of 3 feet onto the previously uncovered pipe. This includes service lines which may be wrapped in polyethylene or dielectric tape.
5. Exposure of wrapped pipe to sunlight should be kept to a minimum. Pipe can be stored with the polywrap on for a maximum of 30 days.
6. At no time shall the polywrapped pipe be subjected to a point load during handling, temporary storage, or installation. The polywrap must be moved away from the timbers or hoisting device while on the pipe to prevent point loads and resulting pin holes.

7. Direct service taps for polyethylene encased pipe shall follow the procedure described in AWWA Standard C600. Access to the main for tapping through polyethylene is accomplished by making two to three passes of polyethylene tape around the pipe and over the polywrap. The tap is to be made directly through the tape and polywrap.
 8. Tape shall be polyethylene compatible adhesive and a minimum of 1.5" wide. Shall be Scotchwrap #50, Fulton #355, or Polyken #900.
- B. **Valve Boxes:** Valve boxes shall be supported so that no load can be transmitted from the valve box to the valve. See Detail Drawing 0201-0601-SD59. Install a self-centering alignment ring at the operating nut American Flow Control, or equal or otherwise make sure that the bottom of the box is centered over the operating and runs perpendicular to the horizontal.
- C. Test/Tracer Wire Boxes
Boxes shall be placed at areas designated in the plans and shall be flush with existing grade unless otherwise noted.
- D. Marker Posts
Install Marker Posts using equipment designed for its installation per manufacturer guidelines and place at locations noted in the drawings or as approved by Engineer.
- E. Corporations and Curb Stops
Service line piping shall be compatible with corporation and curbs stops provided with appropriate protection between dissimilar materials and a minimum of interconnecting fittings

END OF SECTION

56104400	WATER VALVES 1"
56104500	WATER VALVE 1 ½"
56104600	WATER VALVES 2"
56104800	WATER VALVES 4"
56104900	WATER VALVES 6"
56105000	WATER VALVES 8"
56105200	WATER VALVES 12"
	WATER VALVES 1 ¼"

(ILAWC SECTION 15151 - GATE VALVES, CONTRACTOR FURNISHED)

Description

All valves 1 inch through 2 inch shall be bronze body construction, ball valves, with Double O-ring stem seals. Valves shall conform to AWWA Standard C800. End connections shall be suitable for copper or brass compression connection or pack joint for polyethylene pipe, as required. Sizes shall be from 3/4" to 2" and shall match the service line size, unless otherwise specified in the project Drawings. Acceptable manufacturers and model numbers: Ford Meter Box Company – B22 Series, Mueller - B-25204, A. Y. McDonald - 6100 Series. Curb boxes shall be standard cast iron, sliding or screw type, 1" or 2-1/2" as required, complete with lid and head bolt. Boxes shall be adjustable from 18-inches to 66-inches. The box size will be determined by the Engineer. Acceptable manufacturers: Bingham & Taylor, Mueller, Handley Industries, Clay & Bailey, A.Y. McDonald Quality Water Products.

All gate valves, 3 inches through 12 inches NPS, shall be iron body, resilient-seated, nut-operated, non-rising stem gate valves suitable for buried service. The valve interior and exterior shall be epoxy coated at the factory by the valve manufacturer in accordance with AWWA Standard C550 (6-8 mil average, 4 mil minimum). The valves shall be designed for a minimum differential pressure of 250 psi and a minimum internal test pressure of 500 psi unless otherwise noted on the plans. Valves shall be designed to operate in the vertical position. Valves shall comply fully with AWWA Standard C509. Valve ends shall be push on joint or MJ (when restrained), or as shown on the plans or approved in writing in accordance with AWWA Standard C111. Stems shall be made of a low zinc alloy in accordance with AWWA C509 4.2.2.4.3. Stem seals shall be double O-ring stem seals. Square operating nuts conforming to AWWA Standard C509 shall be used. Valves shall open (left or right) in accordance with the Owner's standard. All valve materials shall meet the requirements of NSF 61. Test valves (Operation Test and Hydrostatic Tests) at the manufacturer's plant in accordance with AWWA Standard C509. Provide the Engineer with certified copies of all tests prior to shipment. The Engineer reserves the right to observe all tests. Acceptable manufacturers: Mueller Company, Decatur, Illinois; Clow Canada, Hamilton, Ontario; M&H Valve, Anniston, Alabama; United State Pipe and Foundry Burlington, New Jersey; American Flow Control, Birmingham, Alabama.

Gate valves larger than 12-inches NPS shall be iron body, double disc (metal to metal seat), parallel seats, bronze mounted, rubber O-ring packing seals, epoxy coated interior and exterior meeting the requirements of AWWA Standard C550, and conforming to AWWA Standard C500. Stems shall be

made of a low zinc alloy in accordance with AWWA C500 4.2.2.4.3. All valves shall have openings through the body of the same circular area as that of the pipe to which they are attached. All valves furnished shall open (left or right) in accordance with the Owner's standard. All valve materials shall meet the requirements of NSF 61. Test valves (Operation Test and Hydrostatic Tests) at the manufacturer's plant in accordance with AWWA Standard C515. Provide the Engineer with certified copies of all tests prior to shipment. The Engineer reserves the right to observe all tests. Valves shall have mechanical joint ends unless otherwise designated on the plans or approved by the Engineer. The valves shall be designed for a minimum differential pressure of 150 psi and a minimum internal test pressure of 300 psi, unless otherwise noted on the plans. Make all valves tight under their working pressures after they have been placed and before the main is placed in operation. Any defective parts shall be replaced at the Contractor's expense. Acceptable manufacturers: Mueller Company, ACIPCO (American Flow Control division, Waterous only), McWane, Inc. (Clow and M&H Divisions only), U.S. Pipe, and Crane Co. (Stockham Division only).

Submit shop drawings and manufacturer's literature to the Engineer for approval.

Construction Requirements

Install the valves in strict accordance with the requirements contained in ILAWC Specification Section 15000 and detail drawings. All large gate valves shall be restrained.

After field installation of the valve all external bolts except the operating nut shall receive a layer of tape coating or approved rubberized-bitumen based spray-on undercoating applied before backfill. If polyethylene is applied to the pipe, the entire valve shall be encased in polyethylene encasement prior to backfill. The polyethylene encasement shall be installed up to the operating nut leaving the operating nut exposed and free to be operated. Valve box shall be installed per ILAWC Piping Specialties Specification 15130 or 15131.

The excavated areas that are within proposed paved areas shall be backfilled with controlled low-strength material. Excavated areas not within paved areas shall be backfilled with select earth material.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for WATER VALVES of the diameter specified. This work shall include all labor, equipment and material including excavation, installation and disposing of existing materials; valve boxes, bedding, earth backfill, testing, disinfection; protection, replacement or repair of utilities, drainage systems, structures, homeowner's property and miscellaneous property; removal of surplus excavated material; and clean-up.

The placement of controlled low-strength material will be paid for separately as specified herein.

56108800 TAPPING VALVES AND SLEEVES 6"

TAPPING VALVES AND SLEEVES 2"

(ILAWC SECTION 15171 - TAPPING SLEEVES, SADDLES AND VALVES, CONTRACTOR FURNISHED)

Description

All tapping sleeves, saddles and valves shall be designed for a working pressure of at least 250 psig for 12-inch and smaller. The valves shall be designed for a minimum differential pressure of 250 psi and a minimum internal test pressure of 500 psi unless otherwise noted on the plans.

Submit shop drawings and manufacturer's literature to the Engineer for approval in accordance with ILAWC Specification Section 1300.

Materials

Ductile iron tapping sleeves and valves shall be used unless prior approval is obtained from the Engineer.

Ductile Iron Tapping Sleeves:

Verify the type of existing pipe and the outside diameter of the pipe on which the tapping sleeve is to be installed. Tapping sleeves shall be ductile iron dual compression type unless otherwise specified on the Drawings. The Drawings may require the use of corrosion resistant tapping sleeves in addition to polywrap in areas with corrosive soils. The sleeves shall be made in two halves which can be assembled and bolted around the main. Sleeves shall meet the requirements of NSF 61. Outlet flanges shall conform to the flange requirements of AWWA C110. All valves furnished shall open (left or right) in accordance with the Owner's standard. Acceptable manufacturers: McWane (Clow and M&H), U.S. Pipe (Mueller), and AFC (Waterous).

Tapping Valves:

The horizontal tapping valve shall conform to the applicable requirements of AWWA Standard C509. All tapping valves, 3 inches through 12 inches NPS, shall be ductile iron body, resilient-seated, nut-operated, non-rising stem gate valves suitable for buried service. The valve interior and exterior shall be epoxy coated at the factory by the valve manufacturer in accordance with AWWA Standard C550 (6-8 mil average, 4 mil minimum). The tapping valves shall have flanged inlets with mechanical joint outlets, enclosed bevel gears, bypass valve, rollers, tracks and scrapers. All valves furnished shall open (left or right) in accordance with the Owner's standard. Acceptable manufacturers: McWane (Clow and M&H), U.S. Pipe (Mueller), and AFC (Waterous).

Stainless Steel Tapping Sleeves:

The stainless steel band flange shall be manufactured in compliance with AWWA C207, Class D ANSI B.16.1 drilling, recessed for tapping valve MSS-SP60. Mechanical Joint tapping sleeve outlet shall meet or exceed all material specifications as listed below and be suitable for use with standard mechanical joint by mechanical joint resilient wedge gate valves per ANSI/AWWA C509-94 and be NSF 61 approved.

Tapping sleeves from 4" through 12"

The entire fitting shall be stainless steel type 304 (18-8). The body, lug, and gasket armor plate shall be in compliance with ASTM A240. The Flange shall be cast stainless steel in compliance with ASTM A743. The MJ outlet shall be one-piece casting made of stainless steel. The test plug shall be ¾" NPT in compliance with ANSI B2.1 and shall be lubricated or coated to prevent galling. All metal surfaces shall be passivated after fabrication in compliance with ASTM A-380.

The gasket shall provide a 360-sealing surface of such size and shape to provide and adequate compressive force against the pipe after assembly, to affect a positive seal under the combinations of joint and gasket tolerances. The materials used shall be vulcanized natural or vulcanized synthetic rubber with antioxidant and antiozonant ingredients to resist set after installation. No reclaimed rubber shall be used. A heavy-gauge-type 304-stainless armor plate shall be vulcanized into the gasket to span the lug area.

The lugs shall be heliarc welded (GMAW) to the shell. The lug shall have a pass-through-bolt design to avoid alignment problems and allow tightening from either side of the main. Bolts shall NOT BE integrally welded to the sleeve. Finger Lug designs are not approved; it is the intent of these specifications to allow a tapping sleeve that has a lug design similar to the approved models.

Bolts and nuts shall be type 304 (18-8) stainless steel and Teflon coated or as specified in a bolt section below at the discretion of the Engineer. Bent or damaged units will be rejected.

Quality control procedures shall be employed to insure that the shell, Lug, (4" and Larger Nominal Pipe Diameter) armor plate, gasket and related hardware are manufactured to be free of any visible defects. Each unit, after proper installation, shall have a working-pressure rating up to 250 psi.

The sleeve construction shall provide a positive means of preventing gasket cold flow and/or extrusion.

Each sleeve shall be stenciled, coded or marked in a satisfactory manner to identify the size range. The markings shall be permanent type, water resistant, that will not smear or become illegible.

Tapping sleeves from 16" and larger

Tapping sleeves attached to 16" and larger nominal pipe diameter shall meet the following minimum requirements:

The body shall be in compliance with ASTM A285, Grade C or ASTM A36. The test plug shall be ¾" NPT conforming to ANSI B2.1.

The gasket shall provide a watertight sealing surface of such size and shape to provide an adequate compressive force against the pipe. After assembly, the gasket will insure a positive seal under all combinations of joint and gasket tolerances. Gaskets shall be formed from vulcanized natural or vulcanized synthetic rubber with antioxidant ingredients to resist set after installation. No reclaimed rubber shall be used.

Bolts and nuts shall be high strength, corrosion resistant, low alloy, pre AWWA C111, ANSI A21.11 and as specified in the subsection on bolts in this specification.

Quality control procedures shall be employed to insure that the shell, gaskets, and related hardware area are manufactured to be free of visible defects. Each unit, after proper installation, shall have a working-pressure rating up to 200 psi.

Unless otherwise noted, unit shall be protected by electrostatically applied baked epoxy or polyurethane.

Units for concrete, steel cylinder pipe shall be furnished with load bearing setscrews on a gland flange to transfer loads on the outlet away from the steel cylinder and onto the sleeve. Epoxy-coated tapping sleeves do not require grout seal cavity (AWWA M-9 Manual).

Each sleeve shall be stenciled, coded or marked in a satisfactory manner to identify the size range. The marking shall be permanent type, water resistant, that will not smear or become illegible.

Fabricated Steel Tapping Sleeves:

The fabricated steel tapping sleeve shall be manufactured in compliance with AWWA C207. Sleeves shall be fabricated of minimum three-eighths (3/8) inch carbon steel meeting ASTM A285 Grade C. Outlet flange shall meet AWWA C-207, Class "D" ANSI 150 lb. drilling and be properly recessed for the tapping valve. Bolts and nuts shall be high strength low alloy steel to AWWA C111 (ANSI A21.11). Gasket shall be vulcanized natural or synthetic rubber. Sleeve shall have manufacturer applied fusion bonded epoxy coating, minimum 12 mil thickness., Class D ANSI B.16.1 drilling, recessed for tapping valve MSS-SP60. Mechanical Joint tapping sleeve outlet shall meet or exceed all material specifications as listed below and be suitable for use with standard mechanical joint by mechanical joint resilient wedge gate valves per ANSI/AWWA C509-94 and be NSF 61 approved.

Tapping Saddles:

Unless otherwise specified by the Drawings, tapping saddles conform to the requirements of AWWA Standard C800 for the High Pressure class tapping saddles. Tapping saddles shall consist of ductile iron outlet castings, attached to the pipeline with high strength stainless steel straps. Castings shall be sealed to pipeline with O-ring seals. Saddles shall have ANSI A21.10 flanged outlets counterbored for use with tapping valves and tapping equipment.

Bolts:

All bolts shall have American Standard heavy unfinished hexagonal head and nut dimensions all as specified in ANSI B18.2. Bolts shall be Xylan or FluoroKote #1 suitable for direct bury in corrosive soils.

Construction Requirements

Install the tapping sleeves, saddles, and valves in strict accordance with the requirements of ILAWC Specification Section 15000. Install the tapping sleeves, tapping saddles, and tapping valves in accordance with the manufacturer's instructions. The tapping procedure is to be in accordance with the tapping machine manufacturer's instructions.

After field installation of the valve all external bolts except the operating nut shall receive a layer of tape coating or approved rubberized-bitumen based spray-on undercoating applied before backfill. If polyethylene is applied to the pipe, the entire sleeve and valve assembly shall be encased in polyethylene encasement prior to backfill. The polyethylene encasement shall be installed up to the operating nut leaving the operating nut of the tapping valve exposed and free to be operated

Perform a hydrostatic test of the tapping sleeve and valve assembly in accordance with ILAWC Specification Section 15030 after installation of the tapping sleeve and valve, but prior to making the tap. The test shall be made with the valve open using a tapped mechanical joint cap. No leakage is acceptable. The test pressure shall be maintained for a minimum of 15 minutes. Perform hydrostatic test of tapping saddles in accordance with AWWA Standard C800.

The excavated areas that are within proposed paved areas shall be backfilled with controlled low-strength material. Excavated areas not within paved areas shall be backfilled with selecte earth material.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for TAPPING VALVES AND SLEEVES of the diameter specified. This work shall include all labor, equipment and material including excavation, installation and disposing of existing materials; valve boxes, bedding, earth backfill, testing, disinfection; protection, replacement or repair of utilities, drainage systems, structures, homeowner's property and miscellaneous property; removal of surplus excavated material; and clean-up.

The placement of controlled low-strength material will be paid for separately as specified herein.

56200300 WATER SERVICE LINE 1"**56200400 WATER SERVICE LINE 1 ¼"****56200500 WATER SERVICE LINE 1 ½"****56200700 WATER SERVICE LINE 2"**

(ILWC SECTION 15200 - SERVICE LINES, CONTRACTOR FURNISHED)

Description

Furnish and install service lines originating at the water main and terminating at a curb stop connection where shown on the Drawings or described in the Specification Special Conditions. This Specification Section does not include service lines or meter installations beyond the curb stop. Refer to Standard Details for a typical service line installation.

All Products described below shall meet the requirements of NSF 61.

Research has documented that certain pipe materials (such as polyethylene) and certain elastomers (such as those used in gasket material and packing glands) may be subject to permeation by lower-molecular weight organic solvents or petroleum products. Products supplied under this Specification Section assume that petroleum products or organic solvents will not be encountered. If during the course of pipeline installation the Contractor identifies, or suspects the presence of petroleum products or any unknown chemical substance, notify the Engineer immediately. Stop installing piping in the area of suspected contamination until direction is provided by the Engineer.

Materials

Refer to current AWWA Standards: AWWA Standard for Underground service Valves and Fittings C800.

Copper Service Line Material:

Copper pipe shall be Type K, as specified, meeting the requirements of ASTM Standard B88. The pipe size (3/4", 1", 1-1/2", or 2") and type are to be determined by the Engineer. Type K is normally required in corrosive environments where polyethylene is not allowed.

Miscellaneous Service Line Fittings:

Miscellaneous service line fittings such as couplings, adapters, saddles, bends, plugs, service line electrical insulators, etc. shall conform to AWWA Standard C800. Acceptable manufacturers: Ford Meter Box, Mueller, A.Y. McDonald.

Construction Requirements

Excavate the service line trench in accordance with Division 2 of these Specifications. Where augering or moling is permitted follow guidelines provided by the equipment manufacturer including making a proper size hole to launch and receive the unit. If moling or augering is employed, take appropriate precautions to avoid damaging other utilities and disturbing the unexcavated surface.

Install service line between the tap connection and the curb stop location making only gradual changes in grade or alignment as required. Sharp bends (greater than 15 degrees) in any direction are not allowed unless approved by the Engineer. Installation shall be in accordance with ILAWC Specification Section 15000 and Standard Details and in accordance with local regulators.

Install all services straight and at right angles to the main. If this cannot be accomplished, provide the Owner with accurate as-built dimensions to the tee or corporation stop. The Contractor may be required to attach Owner supplied magnets to curb box and valve box.

All trench services shall be installed with marking tape. This tape shall provide an early warning at shallow depth excavation. The non-detectable tape shall be 6" wide, and buried approximately 12" above the service pipe, but a minimum of 12" below finished grade. It shall consist of multiple layers of polyethylene with an overall thickness of 3 to 5 mils. The black colored lettering on the warning tape shall be abrasion resistant and be imprinted on a color coded background that conforms to APWA color code standards. It shall be installed continuous from the corporation stop to the curb stop.

After completion of service line installation, but prior to backfilling, open the corporation stop slowly to fill the line. When the line is full and all air has been removed, completely open the corporation and close the curb stop. Visually inspect that all piping, fittings, and taps for leaks. Backfill and restore the surface the service line trench in accordance with Division 2 of these Specifications.

Provide polyethylene encasement, or other protective wrap approved by the Engineer, on all metal service lines and fittings (pile, valves, stops, etc.) when they are made of different materials than the water main. When the polyethylene is applied on the main, it shall extend for a minimum clear distance of three (3) feet away from the main when services are not being renewed or extend from the main connection to and including the curb stop or curb meter setter for all new copper service lines. Encasement material and installation shall be per ILAWC Specification Section 15131 and AWWA Standard C105.

The excavated areas that are within proposed paved areas shall be backfilled with controlled low-strength material. Excavated areas not within paved areas shall be backfilled with select earth material.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot for WATER SERVICE LINE of the diameter specified. The service lines will be measured in lineal feet along the centerline of the pipe. The cost of the service lines includes installation by open cut or directional drilling methods, including all excavation, except rock excavation, spacers, joints and fittings, bedding, removal of surplus excavated material, testing, disinfection, earth backfill, and controlled low-strength material backfill.

56201400 CORPORATION STOPS 1"**56201500 CORPORATION STOPS 1 1/4"****56201600 CORPORATION STOPS 1 1/2"****56201800 CORPORATION STOPS 2"****(ILAWC SECTION 15200 - SERVICE LINES, CONTRACTOR FURNISHED)****Description**

Corporation stops shall be of the brass, ball valve type manufactured in accordance with AWWA Standard C800. The inlet connection shall have standard AWWA tapered threads unless otherwise required by the Engineer. The outlet connection shall be copper or brass compression connection end or pack joint for polyethylene pipe, as required. Dielectric unions shall be used to prevent transfer of any electrical stray currents from metallic service lines to metallic water main. The sizes shall range from 1/2" to 2" and shall match the size of specified service line material. Acceptable manufacturers and model numbers are: Ford Meter Box Company - FB400 thru FB1600, Mueller - B-25000, A.Y. McDonald – 4701B Series.

Construction Requirements

Use experienced craftsmen familiar with installation of water service lines when tapping water mains. Make all taps with a suitable tapping machine (Mueller, Ford, Hays or Dresser type) using the proper combined drill and tap. Hand held drilling equipment is not acceptable.

Before making the tap, inspect corporation stops for cleanliness, damaged threads, and proper operation of the ball valve prior to installation. Do not install corporation stops that fail this inspection.

The main may be tapped along the top half of the pipe as directed by the Engineer or as shown on Standard Details. Use a tapping saddle when the water main wall thickness or material (plastic, concrete or A-C pipeline material) make it unsuitable for direct tapping. Verify saddle use with Engineer.

In the case of multiple services of small diameter (less than 2" diameter), corporation stops shall be at least 12 inches apart and at least 22-1/2 degrees above or below the location of any adjacent tap(s) and curb stops and boxes shall be at least one foot apart. In the case of large diameter multiple services, tap at least 24 inches apart and at least 22-1/2 degrees above or below the location of any adjacent tap(s).

Install all corporation stops so that between 2 and 3 threads extend beyond the inside wall of the main. If necessary, make a test tap with the boring bar marked to the proper depth. The corporation stop, when properly installed, will not be shouldered with the main. Do not use lubricants of any type when installing the corporation stop.

Use the procedures outlined in AWWA Standard C600 for installing taps on grey iron or ductile iron mains encased in polyethylene.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for CORPORATION STOPS of the diameter specified. This work shall include all labor, equipment and material including excavation, installation and disposing of existing materials; protection, replacement or repair of utilities, drainage systems, structures, homeowner's property and miscellaneous property; removal of surplus excavated material; and clean-up.

56400500 FIRE HYDRANTS TO BE REMOVED

Description

This work shall consist of complete removal and disposal of the existing fire hydrants at the locations shown on the plans and as directed by the Engineer.

Construction Requirements

The Contractor will be responsible for exploring and determining the type, size, and depth of the fire hydrants. After the new water mains have been satisfactorily installed, disinfected and approval given by the Engineer, the existing hydrants shall be removed as noted on the plans and described herein. The limits of the water lines to be abandoned are shown on the plans. All fire hydrants and valve boxes within the limits shown shall be removed to a minimum one foot below grade. Fire hydrants shall be removed and disposed of by the Contractor in accordance with Article 202.03 of the Standard Specifications.

The remaining water mains shall be abandoned in accordance with the special provision for "Water Main to be Abandoned". The excavated areas that are within proposed paved areas shall be backfilled with controlled low-strength material. Excavated areas not within paved areas shall be backfilled with select earth material.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for FIRE HYDRANTS TO BE REMOVED. This work shall include all labor, equipment and material including excavation, locating existing water main, valves and hydrants; dewatering the abandoned line; cutting and removing sections of pipe, installing restrained plugs and caps, isolation valves and thrust blocks; removing and disposing of valve boxes and fire hydrants to a minimum of 1 foot below grade; protection, replacement or repair of utilities, drainage systems, structures, homeowner's property and miscellaneous property; removal of surplus excavated material; and clean-up.

The abandonment of existing water mains and placement of controlled low-strength material will be paid for separately as specified herein.

56400600 FIRE HYDRANTS

(ILAWC SECTION 15181 - FIRE HYDRANTS, CONTRACTOR FURNISHED)

Description

Furnish all labor, material, tools, and equipment required to install fire hydrants at the location shown on the plans, or where designated by the Engineer. All fire hydrants shall be ductile iron and conform to the requirements of AWWA C502, traffic-model break-away type fire hydrants.

Contact the local water district and obtain written fire hydrant mechanical details for the water district prior to ordering any fire hydrants for the Work. All fire hydrants shall open left or right as required and be clearly marked on the top of the hydrant with a 1-1/2" pentagon top nut and have not less than two (2) O-ring stem seals. The number and sizes of hose nozzle outlets is dependent on the local regulation. (Most typical is two (2) bronze male threaded 2-1/2" hose outlet nozzles and one (1) bronze male threaded 4-1/2" pumper outlet nozzle with American National Fire Hose Connection Screw Threads (NH).) The hydrant shall be break-away traffic flange, 4-1/2" valve opening, 6" mechanical joint pipe connection. The hydrant interior and exterior shall be epoxy coated at the factory by the hydrant manufacturer in accordance with AWWA Standard C550 (6-8 mil average, 4 mil minimum). The Contractor shall contact the local water district and obtain written fire hydrant mechanical details for the water district prior to ordering any fire hydrants in accordance with the drawings.

All fire hydrants shall be Mueller Centurion with part numbers:

- A421-505960 - 3 ½' bury
- A421-505961 - 4' bury
- A421-505962 - 4 ½' bury
- A421-505963 - 5' bury
- A421-505964 - 5 ½' bury
- A421-505965 - 6' bury

Construction Requirements

Contractor shall inspect all fire hydrants upon receipt. Cycle each hydrant to full open and full closed positions to ensure that no internal damage or breakage has occurred during shipment and handling. Check all external bolts for proper tightness. After inspection, close the hydrant valves and replace the outlet nozzle caps to prevent the entry of foreign matter. Protect stored hydrants from the weather/elements with the inlets facing downward.

Locate hydrants on the plans or as directed by the Engineer and in compliance with local regulations. The location shall provide complete accessibility and minimize the possibility of damage from vehicles or injury to pedestrians. When placed behind the curb, the hydrant barrel shall be set so that no portion of the pumper or hose nozzle cap will be less than eighteen to twenty-four inches, depending on local requirements, from the gutter face of the curb. All hydrants shall stand plumb with the pumper nozzle facing the curb. Set hydrants with nozzles at least eighteen inches above the

finished grade as shown on the plans. Set the break flange at least two but no more than six inches above finished grade, or as directed by the Engineer. Connect each hydrant to the main with a six inch branch connection controlled by an independent six inch gate valve, unless otherwise shown on the plans. All hydrants assemblies must be restrained from the hydrant back to the main.

The Engineer may authorize hydrant protection using steel pipe bollards when hydrant installations have a greater than normal exposure to vehicular damage (e.g. parking lot installations, unusual driving situation, etc.). Install all such protection designated by the Engineer. Locate bollards as necessary adjacent to the hydrant and in such a manner as to not interfere with the ability to connect hoses or operate the hydrant as per detail drawing. Additionally, locate the bottom of the bollard and encasement above the hydrant supply piping and valve to prevent the possibility of damage to the piping should the bollard be displaced when hit. Payment for bollards shall be per the supplemental unit price schedule.

Unless otherwise directed by the Engineer, excavate a drainage pit two feet in diameter and two feet deep below but not beyond each hydrant. Fill the pit with compacted $\frac{3}{4}$ inch clean granular under and around the base of the hydrant to a level 12 inches above the hydrant drain opening. No hydrant drainage pit shall be connected to a sewer.

Cover the drainage area with geotextile fabric. The fabric shall completely isolate the gravel or stone so that no fill material or adjacent earth comes in contact with pit material.

Notify the Engineer of situations where the ground water table is above the drain opening of dry barrel hydrants. If directed by Engineer, plug the drain opening using a method acceptable to the hydrant manufacturer. No drainage pit is required when the hydrant drain is plugged. Mark the hydrant, in a manner acceptable to the Owner, to indicate that the drain opening has been plugged. Operation of a hydrant with plugged drain leaves the hydrant barrel full of water. Pump the hydrant barrel dry after each use.

Reaction or thrust blocking at the base of each hydrant must not obstruct the drainage outlet of the hydrant. The size and shape of concrete thrust backing and the number and size of tie rods, when required, shall be approved by the Engineer. Use the thrust blocking material specified in ILAWC Specification Section 3300. See ILAWC Specification Section 15000 for tie rod requirements.

After installation and before backfilling (and after pressure testing the water main) test the hydrant as follows:

Pressure Test

1. Open the hydrant fully and fill with water; close all outlets.
2. To prevent caps from being blow off dry-barrel hydrants and to prevent other possible damage, vent air from the hydrant by leaving one of the caps slightly loose as the hydrant is being filled. After all air has escaped, tighten the cap before proceeding.

3. Apply line pressure.
4. Check for leakage at flanges, nozzles and operating stem.
5. If leakage is noted, repair or replace components or complete hydrant until no leaks are evident.

Drainage Test for Dry-Barrel Hydrants

1. Following the pressure test, close hydrant.
2. Remove one nozzle cap and place pylon or hand over nozzle opening.
3. Drainage rate should be sufficiently rapid to create a noticeable suction.
4. After backfilling, operate the hydrant to flush out any foreign material.
5. Tighten nozzle caps, then back them off slightly so that they will not be excessively tight; leave tight enough to prevent removal by hand.

The excavated areas that are within proposed paved areas shall be backfilled with controlled low-strength material. Excavated areas not within paved areas shall be backfilled with select earth material.

Paint all hydrant above the bury line in accordance with the local operations standards. Touch up paint (as specified by the OWNER under Special Conditions) shall be applied upon completion of installation as needed. Take extreme care to avoid getting any paint on the "O" ring under the top operating nut or on the hydrant nozzles. Should paint be found on the "O" ring, the Contractor shall remove the paint and replace the "O" ring at his expense. Any paint on the hydrant nozzles shall be removed at the Contractor's expense.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for FIRE HYDRANTS. This work shall include all labor, equipment and material including excavation and bury depth of piping, locating existing water main, valves and hydrants; dewatering; cutting and removing sections of pipe, installing restrained plugs and caps, isolation valves and thrust blocks; protection, replacement or repair of utilities, drainage systems, structures, homeowner's property and miscellaneous property; removal of surplus excavated material; and clean-up.

The placement of controlled low-strength material will be paid for separately as specified herein.

56500500 DOMESTIC METER VAULTS

Description

Domestic meter vaults shall contain meter box with meter, DUAL CHECK VALVE and VENT VALVE per specifications herein. All interal piping and fittings of the vault shall be included in this item. Vault shall be 0.300 minimum wall PVC, 18" in diameter. Vault shall utilize flexible hose connections, allowing the meter to sit below the front line and be lifted for servicing. A drain valve shall be installed downstream of the DUAL CHECK VALVE. Approved manufacturer: Mueller

Thermal-Coil Meter Box.

Construction Requirements

Domestic meter boxes shall be installed in accordance with ILAWC Specification Section 15200. Meters shall be furnished and installed by ILAWC.

The excavated areas that are within proposed paved areas shall be backfilled with controlled low-strength material. Excavated areas not within paved areas shall be backfilled with select earth material.

Materials

1. Vent Valve (ILAWC SECTION 15200 - SERVICE LINES, CONTRACTOR FURNISHED)

The inlet connection shall have standard AWWA tapered threads unless otherwise required by the Engineer. The outlet connection shall be copper or brass compression connection end or pack joint for polyethylene pipe, as required. Dielectric unions shall be used to prevent transfer of any electrical stray currents from metallic fittings to metallic water main. The sizes shall match the size of specified service line material. Acceptable manufacturers are: Ford Meter Box Company, Mueller, A.Y. McDonald.

Use the procedures outlined in AWWA Standard C600 for installing taps on grey iron or ductile iron mains encased in polyethylene.

2. Dual Check Valve

The dual check backflow preventer shall meet the domestic requirements of ANSI/ASSE Standard 1024 and bear the seal of approval. It shall be lead free cast copper silicon alloy bodied and include not less than one union. An identification tag indicating direction of flow shall be securely attached to the valve body. The valve shall comply with state codes and standards, where applicable, requiring reduced lead content. Acceptable manufacturers: Watts Series LF7R.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for DOMESTIC METER VAULTS. This work shall include all labor, equipment and material including excavation, vent valves, dual check valves, installation and disposing of existing materials; protection, replacement or repair of utilities, drainage systems, structures, homeowner's property and miscellaneous property; removal of surplus excavated material; and clean-up.

The placement of controlled low-strength material will be paid for separately as specified herein.

X0327241 STEEL CASING PIPE IN TRENCH, 24 INCH

Description

This work consists of excavating, connecting to existing water main, installing 12” ductile iron piping in 24” steel casing, and backfilling as directed by the Engineer. Connection to existing pipelines may require shutdown of Owner facilities. Closely coordinate construction work and connections with the Owner through the Engineer. The Engineer, in consultation with the Owner, may select the time for connection to existing pipelines, including Saturdays, Sundays, or holidays, which, in the opinion of the Engineer, will cause the least inconvenience to the Owner and/or its customers. Make such connections at such times as may be directed by the Owner, at the Contract prices, with no claim for premium time or additional costs.

Submit shop drawings and manufacturer's literature for all Contractor supplied materials promptly to the Engineer for approval in accordance with ILAWC Specification Section 1300.

Material

Casing pipe shall be bare wall steel pipe with a minimum yield strength of 35,000 psi and a minimum wall thickness as listed below:

Casing Outside Diameter <u>Inches</u>	Highway Crossings Casing Wall Thickness <u>Inches</u>	Railroad Crossings Casing Wall Thickness <u>Inches</u>
8.625	0.250	0.250
10.75	0.250	0.250
12.75	0.250	0.250
14	0.250	0.281
16	0.250	0.281
18	0.250	0.312
20	0.312	0.344
24	0.312	0.406
30	0.375	0.469
36	0.500	0.532
42	0.500	0.563
48	0.625	0.625
54	0.625	0.688
60	0.625	0.750
66	0.625	0.813
72	0.750	0.875

Smooth wall steel plates with a nominal diameter of over 54 inches shall not be permitted.

Construction Requirements

All casing construction shall be in accordance with ILAWC Specification Section 02220 - Casing Installation.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot for STEEL CASING PIPE IN TRENCH, 24 INCH. Pipe will be measured in lineal feet along the centerline. This work shall include all labor, equipment and materials necessary to construct the water mains and casing including all excavation, except rock excavation; clearing and grubbing; casing pipe; spacers; locating existing water main and utilities; furnishing and installing transition fittings for dissimilar pipe materials; furnishing and installing pipe, restrained joint pipe, fittings, reducers and elbows; polyethylene wrap; watertight plugs; No. 12 THWN single strand tracer wire, bedding and backfill (except Trench Backfill, Special material, which will be paid as specified herein); thrust blocks; testing; chlorination taps; disinfection; protection, replacement or repair of utilities, drainage systems, structures, homeowner's property and miscellaneous property; removal of surplus excavated material; and clean-up.

The placement of controlled low-strength material will be paid for separately as specified herein.

X0327367 STEEL CASING PIPE, BORED AND JACKED, 24"
XX005281 STEEL CASING PIPE, BORED AND JACKED, 16"
XX009130 STEEL CASING PIPE, BORED AND JACKED, 12"

Description

This work shall consist of furnishing and installing a steel casing pipe by boring and jacking at the locations shown on the plans and as directed by the Engineer, excavating, connecting to existing water main, installing restrained joint ductile iron piping in steel casing, and backfilling as directed by the Engineer. Connection to existing pipelines may require shutdown of Owner facilities. Closely coordinate construction work and connections with the Owner through the Engineer. The Engineer, in consultation with the Owner, may select the time for connection to existing pipelines, including Saturdays, Sundays, or holidays, which, in the opinion of the Engineer, will cause the least inconvenience to the Owner and/or its customers. Make such connections at such times as may be directed by the Owner, at the Contract prices, with no claim for premium time or additional costs.

Submit shop drawings and manufacturer's literature for all Contractor supplied materials promptly to the Engineer for approval in accordance with ILAWC Specification Section 1300.

Material

Ductile Iron (DI) Pipe shall be TR-Flex pipe and shall meet the requirements as specified in Section 15105 and the drawings.

Casing pipe shall be bare wall steel pipe with a minimum yield strength of 35,000 psi and a minimum wall thickness as listed below:

Casing Outside Diameter Inches	Highway Crossings Casing Wall Thickness Inches	Railroad Crossings Casing Wall Thickness Inches
8.625	0.250	0.250
10.75	0.250	0.250
12.75	0.250	0.250
14	0.250	0.281
16	0.250	0.281
18	0.250	0.312
20	0.312	0.344
24	0.312	0.406
30	0.375	0.469
36	0.500	0.532
42	0.500	0.563
48	0.625	0.625
54	0.625	0.688
60	0.625	0.750
66	0.625	0.813
72	0.750	0.875

Smooth wall steel plates with a nominal diameter of over 54 inches shall not be permitted.

Construction

All casing construction shall be in accordance with ILAWC Specification Section 02220 - Casing Installation.

The manufacturer shall ensure that the interior of all pipe is clean and install plastic cleanliness plugs in all pipes to keep the pipe interiors clean. The manufacturer shall package the pipe in a manner designed to ensure that it arrives at the project neat, clean, intact, and without physical damage. The transportation carrier shall use appropriate methods and intermittent checks to assure that the pipe is properly supported, stacked, and restrained during transport such that the pipe is not nicked, gouged, or physically damaged.

Inspect pipe and appurtenances for defects prior to installation in the trench. Set aside defective, damaged or unsound material and hold material for inspection by the Engineer.

Pipe shall be stored on clean, level ground to prevent undue scratching or gouging. If the pipe must be stacked for storage, such stacking shall be done in accordance with the pipe manufacturer’s recommendations. The pipe shall be handled in such a manner that it is not pulled over sharp objects or cut by chokers or lifting equipment.

Remove all dirt and foreign matter from pipe before lowering into the trench. Do not place debris, hand tools, clothing or other materials in the pipe. Keep pipe clean during and after laying.

Place location wire directly over the water main within the casing pipe. The wire shall be contiguous except at test stations, valve boxes, and where splicing is required. All splices shall be encased with a 3M-Gel Pack model No. 054007-09053. Wire insulation shall be highly resistant to alkalis, acid and other destructive agents found in soil.

Prevent flotation of sealed pipe during work stoppages.

Pressure testing shall be conducted in accordance with the Manufacturer's recommended procedure or as recommended by the Engineer. Pressure testing shall use water as the test media. Pneumatic (air) testing is prohibited. Air must be completely removed before pressure testing.

The excavated areas that are within proposed paved areas shall be backfilled with controlled low-strength material. The other excavated areas not within paved areas shall be backfilled with select earth material and compacted.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot for STEEL CASING PIPE, BORED AND JACKED, of the diameter specified. Water mains will be measured in lineal feet along the centerline of the pipe. The work shall include all material, labor and equipment necessary to construct the water mains including all excavation, except rock excavation; clearing and grubbing; casing pipe; spacers; locating and connecting to existing water mains; furnishing and installing transition fittings for dissimilar pipe materials; furnishing and installing pipe, restrained joint pipe, fittings, reducers and elbows; polyethylene wrap; watertight plugs; bedding and earth backfill, all equipment required for directional drilling, including drilling fluids and excess fluid containment; bedding and backfill (except Trench Backfill, Special material, which will be paid as specified herein); thrust blocks; testing; disinfection; protection, replacement or repair of utilities, drainage systems, structures, and miscellaneous property; removal of surplus excavated material; and clean-up.

The placement of controlled low-strength material will be paid for separately as specified herein.

<u>X0327546</u>	<u>LINE STOPS 20"</u>
<u>X5610744</u>	<u>WATER MAIN LINE STOP 4"</u>
<u>X5610746</u>	<u>WATER MAIN LINE STOP 6"</u>
<u>X5610748</u>	<u>WATER MAIN LINE STOP 8"</u>
<u>X5610752</u>	<u>WATER MAIN LINE STOP 12"</u>

Description

This work shall consist of furnishing and installing temporary inflatable plugs in pressurized water

mains to stop water flow and allow for the installation of new water mains and valves at locations shown on the plans and as shown on the plans. Other means of plugging the water mains must be approved by Illinois American Water Company prior to beginning the work.

Construction Requirements

The Contractor will be responsible for excavating and locating the existing water mains at locations shown on the plans or as directed by the Engineer. The Contractor shall install the inflatable plugs and leave them in place until such time that the new water main connections are made and tested and then the plugs can be removed.

The excavated areas that are within proposed paved areas shall be backfilled with controlled low-strength material. Excavated areas not within paved areas shall be backfilled with select earth material.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for LINE STOPS or WATER MAIN LINE STOP of the size specified. This work shall include all labor, equipment and material including excavation, except rock excavation, removals, protection, replacement or repair of utilities, drainage systems; removal of surplus excavated material; backfill with earth and clean-up.

The placement of controlled low-strength material will be paid for separately as specified herein.

X5619340 VALVE BOX ASSEMBLY, MANUAL LINE FLUSH

(ILAWC SECTION 15191 - AIR RELEASE & BLOWOFF OUTLETS, CONTRACTOR FURNISHED)

Description

Furnish and install air release and blow-off outlets at the locations shown on the Drawings or as directed by the Engineer. Submit shop drawings and manufacturer's literature for equipment to be supplied to the Engineer for approval in accordance with ILAWC Specification Section 1300. All Products shall meet the requirements of NSF 61.

Materials

Provide 1" APCO Model No. 143C as manufactured by Valve and Primer Corporation (Schaumburg, IL) or 1" Valvematic (Elmhurst, IL) Model 201 for mains 12" and smaller unless noted otherwise on the plans. Provide 2" APCO Model No. 145C as manufactured by Valve and Primer Corporation or Valvematic Model 202C for mains 16" and larger unless noted otherwise on the plans. Combination valves shall be double acting to prevent accumulation of air in the pressurized main and to permit air to enter the pipe when pressure seriously drops. Bodies shall be cast iron with stainless steel floats. Refer to current AWWA Standards: AWWA Standard for Air-Release, Air/Vacuum, and Combination Air Valves for waterworks Service C512.

Blowoff Flushing Hydrant Assembly:

Blow off assembly for underground applications shall be designed to fit within a standard valve box.

In areas prone to cold weather they shall be self draining and non-freezing. All working parts shall be serviceable from above with no digging required. They shall be operated such that the device goes from full open to full close in a ¼ turn clockwise turn. Approved types of flushing hydrants are Tru-Flo Model TF 500 by the Kupferle Foundry or equal.

Miscellaneous Service Line Fittings:

Miscellaneous service line fittings such as couplings, adaptors, saddles, bends, plugs, water service electrical insulators, etc. shall conform to AWWA Standard C800. Acceptable manufacturers: Ford Meter Box, Mueller, A.Y. McDonald.

Construction Requirements

See ILAWC Specification Section 15000 for pipe installation. See Detail Drawings showing installation details for air/vacuum release valve assemblies and air blow-off assemblies. See ILAWC Specification Section 15200 for information about selected components (copper pipe, corporation stops, curb stops, curb boxes) common to service lines.

Use experienced craftsmen familiar with installation of water service lines when tapping water mains. Make all taps with a suitable tapping machine (Mueller, Ford, Hays or Dresser type) using the proper combined drill and tap. Hand held drilling equipment is not acceptable.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for VALVE BOX ASSEMBLY, MANUAL LINE FLUSH. This work shall include all labor, equipment and material including excavation, installation and disposing of existing materials; protection, replacement or repair of utilities, drainage systems, structures, homeowner's property and miscellaneous property; removal of surplus excavated material; and clean-up.

The placement of controlled low-strength material will be paid for separately as specified herein.

X6026622 VALVE VAULTS TO BE REMOVED**Description**

This work shall consist of completely removing and properly disposing of valve vaults as shown on the plans and as directed by the Engineer. The work shall be in accordance with the applicable Articles of Section 602 of the Standard Specifications and the following additions or exceptions.

Construction Requirements

The Contractor will be responsible for exploring and determining the type, size, and depth of the valve vault. Removal of the valve vaults shall consist of the complete removal and disposal of the valve vault structure and any associated valve, piping, or other materials. Previously abandoned

water main to be left in place shall be drained have the ends capped or plugged with concrete as directed by the Engineer. Materials determined not to be salvaged by ILAWC shall be disposed of by the Contractor in accordance with Article 202.03 of the Standard Specifications.

The excavated areas that are within proposed paved areas shall be backfilled with controlled low-strength material. The other excavated areas not within paved areas shall be backfilled with select earth material and compacted.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for VALVE VAULTS TO BE REMOVED, which price shall be considered payment in full for all labor, equipment, and material required for the satisfactory removal and disposal of the existing valve vaults, including all excavation, backfill and disposal.

X6026624 VALVE BOXES TO BE ADJUSTED (SPECIAL)

Description

This work shall consist of adjusting existing water valve boxes to finished grade at the locations shown on the plans and as directed by the Engineer. The work shall include excavating around the valve boxes, adjusting the boxes to match the finished grade and backfilling the excavation with select earth material. Excavations within the limits of paved surfaces shall be backfilled with controlled low-strength material. Any broken or damaged valve box materials will be replaced by the Contractor. Replacement valve box materials will be furnished by Illinois American Water Company.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for VALVE BOXES TO BE ADJUSTED (SPECIAL), which price shall include all work as specified herein.

The placement of controlled low-strength material will be paid for separately as specified herein.

XX003120 YARD HYDRANT (FROST PROOF)

Description

Yard hydrants shall be installed as shown on the Drawings and as directed by the Engineer. The yard hydrant shall consist of the hydrant, fittings, hardware, drain hole, clean stone, filter wrap and accessories for a complete and operable hydrant.

Materials

Hydrants shall be Z1391 exposed, non-free post hydrant, complete with bronze casing, all bronze interior parts, bronze seat, replaceable seat washer, and non-turning operating rod with free-floating

compression closure valve and 1" connection. Operating key included. Hydrant equipped with a tapped 1/4" drain port in valve housing. Acceptable manufacturer: Zurn Light Commercial Z1391 Post Hydrant.

Construction Requirements

The yard hydrant shall be installed as shown on the Drawings. Hydrants shall be isolated from the potable water supply by a DUAL CHECK VALVE as specified herein and installed in accordance with Section 890.1130(f). All hydrants shall be painted purple and marked "THIS WATER UNSAFE FOR DRINKING". Hydrant discharge shall be a minimum of 6" above planter fill line.

Each hydrant shall be installed with a 1/8" drain hole to drain hydrant and lead. 3/4" clean stone with filter fabric shall be used to encourage drainage as shown on the Drawings.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for YARD HYDRANT (FROST PROOF). This work shall include all labor, equipment and material including excavation, installation and disposing of existing materials, backfill with clean; protection, replacement or repair of utilities, drainage systems, structures, homeowner's property and miscellaneous property; removal of surplus excavated material; and clean-up.

The placement of controlled low-strength material will be paid for separately as specified herein.

XX005476 DUCTILE IRON WATER MAIN 12" RESTRAINED JOINT TYPE
XX005477 DUCTILE IRON WATER MAIN 4" RESTRAINED JOINT TYPE
XX005478 DUCTILE IRON WATER MAIN 6" RESTRAINED JOINT TYPE
XX005479 DUCTILE IRON WATER MAIN 8" RESTRAINED JOINT TYPE
XX009129 DUCTILE IRON WATER MAIN 20" RESTRAINED JOINT TYPE

(ILAWC SECTION 15106 - DUCTILE IRON PIPE AND FITTINGS, CONTRACTOR FURNISHED)

Description

Connection to existing pipelines may require shutdown of Owner facilities. Closely coordinate construction work and connections with the Owner through the Engineer. The Engineer, in consultation with the Owner, may select the time for connection to existing pipelines, including Saturdays, Sundays, or holidays, which, in the opinion of the Engineer, will cause the least inconvenience to the Owner and/or its customers. Make such connections at such times as may be directed by the Owner, at the Contract prices, with no claim for premium time or additional costs.

Submit shop drawings and manufacturer's literature for all Contractor supplied materials promptly to the Engineer for approval in accordance with ILAWC Specification Section 1300.

Refer to current AWWA Standards:

AWWA C104 - American National Standard for Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water

AWWA C105 - American National Standard for Polyethylene Encasement for Ductile-Iron Pipe Systems

AWWA C110 - American National Standard for Ductile-Iron and Gray-Iron Fittings, 3-inch through 48-inch, for Water and Other Liquids

AWWA C111 - American National Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings

AWWA C115 - American National Standard for Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges

AWWA C116 - American National Standard for Protective Fusion-Bonded Epoxy Coatings for the Interior and Exterior Surfaces of Ductile-Iron and Gray-Iron Fittings for Water Supply Service

AWWA C150 - American National Standard for the Thickness Design of Ductile-Iron Pipe

AWWA C151 - American National Standard for Ductile-Iron Pipe, Centrifugally Cast, for Water

AWWA C153 - American National Standard for Ductile-Iron Compact Fittings, 3-inch through 24-inch and 54-inch through 64-inch, for Water Service

AWWA C600 -- AWWA Standard for Installation of Ductile-Iron Water Mains and Their Appurtenances

Materials

Research has documented that certain elastomers (such as those used in gasket material) may be subject to permeation by lower-molecular weight organic solvents or petroleum products. Products supplied under this Specification Section assume that petroleum products or organic solvents will not be encountered. If during the course of pipeline installation the Contractor identifies, or suspects the presence of petroleum products or any unknown chemical substance, notify the Engineer immediately. Stop installing piping in the area of suspected contamination until direction is provided by the Engineer.

Pipe:

Ductile iron pipe shall conform to the latest specifications as adopted by the American National Standards Institute, Inc., (ANSI) and the American Water Works Association (AWWA). Specifically, ductile iron pipe shall conform to AWWA Standard C151. The pipe or fitting exterior shall be coated with a bituminous coating in accordance with AWWA Standard C151. The pipe or fitting interior shall be cement mortar lined and seal coated in compliance with the latest revision of AWWA Standard C104. Pipe and fittings shall meet the following minimum quality requirements by conforming to the following:

AWWA C105 / ANSI A21.5 Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water Polyethylene Encasement for Ductile-Iron Pipe Systems

AWWA C110 / ANSI A21.10 Ductile Iron and Gray Iron Fittings, 3 NPS through 48 NPS for Water

AWWA C111 / ANSI A21.11 Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings

AWWA C115 / ANSI A21.15 Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges

AWWA C116 / ANSI A21.16 Protective Fusion-Bonded Epoxy Coating for the Interior and Exterior Surfaces of Ductile-Iron and Gray-Iron Fittings for Water Supply Service

AWWA C150 / ANSI A21.50 Thickness Design of Ductile-Iron Pipe

AWWA C151 / ANSI A21.51 Ductile-Iron Pipe, Centrifugally Cast, for Water

AWWA C153 / ANSI A21.53 Ductile-Iron Compact Fittings, 3 NPS through 24 NPS and 54 NPS through 64 NPS, for Water Service

Ductile iron water pipe and fittings will be accepted on the basis of the Manufacturer’s certification that the material conforms to this specification. The certification for iron fittings shall list a fitting description, quantity, bare fitting weight and source, (AWWA Standard C110, C153 or Manufacturer, if fitting is not listed in either standard). The certification shall accompany the material delivered to the project site. The Owner reserves the right to sample and test this material subsequent to delivery at the project site. If foreign manufactured fittings are provided, then the Contractor is obligated to notify the Engineer with a submittal and provide the necessary documentation to satisfy the Engineer and the Owner that the materials provided meet the specified AWWA standards and, among other documentation that may be required, provide certificates of compliance on the component supplied. The pressure class of pipe to be furnished shall be in accordance with Table 1 and the notes listed below.

Table 1
MINIMUM RATED WORKING PRESSURE
FOR DUCTILE IRON PIPE MANUFACTURED IN ACCORDANCE
WITH AWWA Standard C151

Pipe Size (Inch)	Pressure Class
6	350
8	350
12	350
16	300
20	300
24	250

Larger pipe sizes up to 54-inch can be installed as pressure Class 200 with cover up to nine (9) feet and an operating pressure of 200 psi, where approved by the Engineer. When trench depths exceed fifteen (15) feet for pipe sizes of 16-inch or larger, the Engineer shall direct the Contractor on the proper class pipe to use.

The noted pressure class is adequate to support 3/4 and 1-inch corporation stops. Use a full saddle for larger taps (e.g., air relief valves or larger corporations) due to limited wall thickness.

There are special conditions where a larger wall thickness is required. The Engineer shall direct the Contractor on the proper pressure class pipe to use in specific instances; e.g. at treatment plant or booster station sites where frequent excavation can be anticipated in the vicinity of pipe, where the pipeline is laid on a river channel bottom to prevent external damage to the pipe and minimize the potential for costly pipe replacement, etc.

Perform a hydrostatic test of all pipe and appurtenances as required by AWWA Standard C151 and Specification Section 15030.

Mechanical and push-on joints including accessories shall conform to AWWA Standard C111.

Flanged joints shall conform to AWWA Standard C110 or ANSI B16.1 for fittings and AWWA Standard C115 for pipe. Do not use flanged joints in underground installations except within structures. Furnish all flanged joints with 1/8-inch thick, red rubber or styrene butadiene rubber gaskets. The bolts shall have American Standard heavy unfinished hexagonal head and nut dimensions all as specified in American Standard for Wrench Head Bolts and Nuts and Wrench Openings (ANSI B18.2). For bolts of 1-3/4-inches in diameter and larger, bolt studs with a nut on each end are recommended. The high-strength, low-alloy steel for bolts and nuts shall have the characteristics listed in Table 6 of AWWA Standard C111. Exposed bolts and nuts in aggressive soils shall be Xylan or FluoroKote #1.

Restrained joints for pipes shall be of the boltless push-on type which provides joint restraint independent of the joint seal. Restrained push-on joints allowed for pipe only shall have accessories conforming to AWWA Standard C111. Restrained system shall be suitable for the following minimum working pressures:

Size (Inch)	Pressure (psi)
Less than 20"	350
20"	300
24"	250
30" - 64"	200

Suppliers acceptable to American Water are United States Pipe & Foundry Co., Griffin Pipe Products Company, McWane Cast Iron Pipe Co., and American Cast Iron Pipe Company.

Fittings

Standard fittings shall be ductile iron conforming to AWWA Standard C110. Compact ductile iron fittings shall meet the requirements of AWWA Standard C153. Fittings shall be suitable for the following working pressures unless otherwise noted in AWWA Standard C110 or C153:

Size	<u>Pressure (psi)</u>	
	Compact Fittings Ductile Iron	Standard Fittings Ductile Iron
3" - 24"	350	250 , 350 (with special gaskets)
30" - 48"	250	250
54" - 64"	150	N/A

The use of standard ductile iron fittings having a 250 psi pressure rating with ductile iron pipe (having a rating of 350 psi) is not permitted except by the expressed written approval by the Engineer.

The fittings shall be coated on the outside with a petroleum asphaltic coating in accordance with AWWA Standard C110 or fusion coated epoxy in accordance with AWWA Standard C116 and lined inside with cement-mortar and seal coated in accordance with AWWA Standard C104 or fusion coated epoxy in accordance with AWWA Standard C116.

Suppliers acceptable to American Water are (Sigma through) United States Pipe & Foundry Co., (Tyler Union –domestic only), American Cast Iron Pipe Company

Mechanical and push-on joints including accessories shall conform to AWWA Standard C111. Anti-Rotation T-Bolts shall be used on mechanical joints shall be of domestic origin, high strength, low alloy steel bolts only, meeting the current provisions of American National Standard ANSI/AWWA C111/A21.1-90 for rubber gasket joints for cast iron or ductile iron pipe and fittings. Bolt manufacturer’s certification of compliance must accompany each shipment. T-bolts shall be Xylan or FluoroKote #1, (corrosion resistant) to handle corrosive conditions on any buried bolts.

Flanged joints shall meet the requirements of AWWA Standard C115 or ANSI B16.1. Do not use flanged joints in underground installations except within structures. Furnish all flanged joints with a minimum 1/8-inch, thick red rubber or styrene butadiene rubber gasket. The bolts shall have American Standard heavy unfinished hexagonal head and nut dimensions all as specified in ANSI B18.2. Xylan or FluoroKote #1 Hex Bolts (corrosion resistant) to handle corrosive conditions shall be used on any buried flanged bolts. Flange gaskets shall be rubber in composition; paper gaskets are not permitted.

Bolts and nuts shall be threaded in accordance with ASME/ANSI B1.1, Unified Inch Screw Threads (UN and UNR Thread Form) class 2A external and class 2B internal. For bolts of 1-3/4-inches in diameter and larger, bolt studs with a nut on each end are recommended. Material for bolts and nuts shall conform to ASTM A307, 60,000 PSI Tensile Strength, Grade B, unless otherwise specified. Bolt manufacturer’s certification of compliance must accompany each shipment.

Restrained joints for valves and fittings shall be of the boltless push-on type which provides joint restraint independent of the joint seal. Field Lok gaskets are not permitted on valves or fittings.

Restrained push-on joints allowed for pipe only shall have accessories conforming to AWWA Standard C111. Restrained system shall be suitable for the following minimum working pressures:

Size	Pressure (psi)
Less than 20"	350
20"	300
24"	250
30" - 64"	250

Where adjacent fittings are to be placed (as in a mechanical joint hydrant tee and a mechanical joint hydrant valve), the use of a suitably sized Foster adaptor is permitted to facilitate restraint between the fittings.

Construction Requirements

For push-on joints, clean the surfaces that the gasket will contact thoroughly, just prior to assembly using a bacteria free solution (bleach, potable water or NSF approved material). Insert the gasket into the groove in the bell. Apply a liberal coating of special lubricant to the gasket and the spigot end of the pipe before assembling the joint. Center the spigot end in the bell and push home the spigot end.

For mechanical joints, clean and lubricate all components with soapy water prior to assembly. Slip the follower gland and gasket over the pipe plain end making sure that the small side of the gasket and lip of the gland face the bell socket. Insert the plain end into socket. Push gasket into position with fingers. Seat gasket evenly. Slide gland into position, insert bolts, and tighten nuts by hand. Tighten bolts alternately (across from one another) to the recommended manufacturing rating or if not provided, to the following normal torques:

Bolt Size	Range of Torque In Foot-Pounds
5/8"	40 - 60
3/4"	60 - 90
1"	70 - 100
1-1/4"	90 - 120

After field installation, all bolts shall receive petrolatum tape or petroleum wax protection or other approved coating material. Protection shall be applied before applying polywrap per ILAWC Specification Section 15131.

For restrained joints (ball and socket), assemble and install the ball and socket joint according to the manufacturer's recommendations. Thoroughly clean and lubricate the joint. Check the retainer ring fastener.

For restrained joints (push-on), assemble and install the push-on joint according to the manufacturer's recommendations. Thoroughly clean and lubricate the joint. Check the retainer ring fastener. Protect pipe from damage from the jacking device (backhoe bucket, pipe jack, etc.) when "pushing home" any pipe by using wood or other suitable (non metallic) material.

For restrained joints (mechanical), assemble and install the mechanical joint according to the manufacturer's recommendations. Thoroughly clean and lubricate the joint. Use approved restrained joint device on fittings and valves where required and approved for use by Engineer.

Protect pipe from damage from the jacking device (backhoe bucket, pipe jack, etc.) when "pushing home" any pipe. Wood or other suitable material (non metallic) shall be used to push home the pipe.

Gaskets shall be as provided or recommended by the manufacturer and satisfy AWWA standard C111 in all respects. As noted in the products section of this specification, some gasket materials are prone to permeation of certain hydrocarbons which may exist in the soil (see part 2). Under these conditions and at the Engineer's discretion require contractor to provide FKM (Viton, Flourel) gasket material in areas of concern.

The excavated areas that are within proposed paved areas shall be backfilled with controlled low-strength material. Excavated areas not within paved areas shall be backfilled with select earth material.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot for DUCTILE IRON WATER MAIN RESTRAINED JOINT TYPE of the diameter specified. Water mains will be measured in lineal feet along the centerline of the pipe. This work shall include all labor, equipment and materials necessary to construct the water mains including all excavation, except rock excavation; clearing and grubbing; locating existing water main; furnishing and installing transition fittings for dissimilar pipe materials; furnishing and installing pipe, restrained joint pipe, fittings, reducers and elbows; polyethylene wrap; watertight plugs; No. 12 THWN single strand tracer wire, bedding and backfill (except Trench Backfill, Special material, which will be paid as specified herein); thrust blocks; testing; chlorination taps; disinfection; protection, replacement or repair of utilities, drainage systems, structures, homeowner's property and miscellaneous property; removal of surplus excavated material; and clean-up.

The placement of controlled low-strength material will be paid for separately as specified herein.

XX007334 PVC CASING PIPE 4"
XX007968 PVC CASING PIPE 12"
XX008889 PVC CASING PIPE 15"

Description

This work shall consist of constructing PVC casing pipes of various diameters for the water mains at locations shown on the plans and as directed by the Engineer.

Materials

PVC Casing:

PVC Casing pipes shall be water main quality pipe in accordance with Article 40-2.01 C of the Standard Specifications for Water and Sewer Main Construction in Illinois and the following requirements.

Standard C900: Polyvinyl Chloride (PVC) Pressure Pipe Schedule 80 with fabricated fittings, 4 inch through 12 inch diameter, for Water Distribution.

Standard C905: Polyvinyl Chloride (PVC) Pressure Pipe Schedule 80 with fabricated Fittings, 14 inch through 48 inch diameter, for Water Transmission and Distribution.

Joints in the PVC pipe shall be pressure slip jointed with elastomeric gaskets in accordance with ASTM Standard F477 or solvent cement welded in accordance with ASTM Standard D2564.

Rubber end seals shall be wrapped around the end of casing and the carrier pipe after installation to provide a barrier to the backfill material. The end seals shall be secured with stainless steel straps. The end seals shall be Cascade Waterworks Manufacturing Company Model CCES or approved equal.

Construction Requirements

The casing pipe may be open cut or bored and jacked. The proposed method of installation shall be approved by the Engineer prior to starting the work.

The water main pipe may be pushed or pulled (depending upon piping material, joint type, and method of pipe spacers and support) into the casing as assembled. The proposed method of installation shall be approved by the Engineer prior to starting the work.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot for PVC CASING PIPE of the diameter specified. The casing pipes will be measured in lineal feet along the centerline of the pipe. This work shall include all labor, equipment and materials necessary to construct the water mains and casing including all excavation, except rock excavation; clearing and grubbing; casing pipe; spacers; locating existing water main and utilities; furnishing and installing transition fittings for dissimilar pipe materials; furnishing and installing pipe, restrained joint pipe, fittings, reducers

and elbows; polyethylene wrap; watertight plugs; No. 12 THWN single strand tracer wire, bedding and backfill (except Trench Backfill, Special material, which will be paid as specified herein); thrust blocks; testing; chlorination taps; disinfection; protection, replacement or repair of utilities, drainage systems, structures, homeowner's property and miscellaneous property; removal of surplus excavated material; and clean-up.

The placement of controlled low-strength material will be paid for separately as specified herein.

XX008839 WATER MAIN TO BE ABANDONED

Description

This work shall consist of removing, plugging, capping, and properly abandoning, disposing or grout pipes full of the existing water mains, valve boxes and service lines as shown on the Drawings and as directed by the Engineer. Abandoning of the water mains and service lines shall consist of draining and leaving the existing pipes in place except where they conflict with the new construction in which case the water mains and service lines shall be removed and disposed of. This work shall consist of constructing concrete dead-ends and cross blocks around water mains to prevent movement of the pipes at the location shown on the plans.

Construction Requirements

The Contractor will be responsible for exploring and determining the type, size, and depth of the water mains, valve box and service lines. All abandoned piping remaining in place shall be drained have the ends capped or plugged with concrete as directed by the Engineer. Existing valves and curb stops that are being abandoned and do not conflict with the proposed work shall remain in place, but the top of the valve boxes shall be removed to a minimum of one foot below grade. The remainder of the valve boxes and void around the box shall be filled with concrete. Removal of the valve boxes shall consist of the complete removal and disposal of the valve box structure and any associated valve, piping, or other materials. Previously abandoned water main to be left in place shall be drained have the ends capped or plugged with concrete as directed by the Engineer.

Domestic meter boxes and dead end and cross blocking installed for staging purposes shall be completely removed. The removal of fire hydrants shall be in accordance with the special provision for "Fire Hydrants to be Removed". The material that is salvageable shall be stored on site and become the property of Illinois American Water Company (ILAWC). Representatives of ILAWC will make the final determination if the material is salvageable. Materials determined not to be salvaged by ILAWC shall be disposed of by the Contractor in accordance with Article 202.03 of the Standard Specifications. The concrete for the dead-end cross blocks shall be class SI in accordance with Section 1020 of the Standard Specifications. The reinforcement bars shall be in accordance with Article 1006.10 of the Standard Specifications.

The excavated areas that are within proposed paved areas shall be backfilled with controlled low-strength material. The other excavated areas not within paved areas shall be backfilled with select

earth material and compacted. The excavated area around the blocks shall be backfilled with controlled low-strength material to the top of the dead-end cross blocks.

Measurement and Payment

This work will be measured and paid for at the contract lump sum price for WATER MAIN TO BE ABANDONED. This work shall include all labor, equipment and material necessary to complete the work, including excavation, locating existing water main, valves, hydrants and service connections; dewatering the abandoned line; cutting and removing sections of pipe, installing restrained plugs and caps, concrete plugs, isolation valves and thrust blocks; removing and disposing of pipes, valve boxes and curb boxes to a minimum of 1 foot below grade; dead-end and cross blocking; and protection, replacement or repair of utilities, drainage systems, structures, homeowner's property and miscellaneous property.

The removal of fire hydrants and placement of controlled low-strength material will be paid for separately as specified herein.

SANITARY SEWER SPECIFICATIONS

<u>X0321620</u>	<u>SANITARY SEWER REMOVAL 21"</u>
<u>X0323814</u>	<u>SANITARY SEWER REMOVAL 18"</u>
<u>X0487700</u>	<u>SANITARY SEWER REMOVAL 10"</u>
<u>X0840000</u>	<u>SANITARY SEWER REMOVAL 8"</u>
<u>XX002082</u>	<u>SANITARY SEWER REMOVAL 24"</u>

Description

This work shall consist of locating, removing, and disposing of existing sanitary sewers that are being abandoned or being replaced with new sanitary sewers. The work shall be performed as specified herein and as directed by the Engineer.

Construction Requirements

The exact locations and depths of the existing sanitary sewers are unknown. The Contractor shall be responsible for locating the sanitary sewers and verifying the size, material type, and depth of the pipes. The Contractor shall use care in excavating trenches and follow all safety requirements. It will be necessary to shore trenches or use trench boxes to protect workers and adjacent existing sewers or utilities. Geotechnical information is available for the existing soils and can be obtained from the Engineer upon request.

Excavations in non-paved areas shall be backfilled with earth and compacted to the satisfaction of the Engineer. Excavations that are under or within two feet of paved surfaces shall be backfilled with controlled low-strength material in accordance with Section 593 of the Standard Specifications and as directed by the Engineer.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot for SANITARY SEWER REMOVAL of the size specified, which price shall include all labor, equipment, materials, and earth backfill required for the satisfactory removal and disposal of the existing sanitary sewers. Controlled low-strength material will be paid for separately as specified herein.

X0322791 FILL EXISTING SANITARY SEWERS

Description

This work shall consist of filling existing sanitary sewers with controlled low-strength material to abandon them in place as directed by the Engineer. The controlled low-strength material shall be in accordance with Section 593 of the Standard Specifications. The pipes shall be filled with the use of concrete pumping machines or by methods approved by the Engineer.

Excavations shall be made to expose the ends of pipes to be filled. If necessary, vent holes shall be made in the pipes to allow air to release while filling. The pipes shall be completely filled with controlled low-strength material to prevent collapsing, and the ends of the pipes shall be capped to contain the controlled low-strength material. Excavations within paved areas shall be backfilled with controlled low-strength material. Pipe openings to be abandoned in existing sanitary manholes shall be sealed in accordance with the requirements of the specification for Manholes, Sanitary, 4'-Diameter, Type 1 Frame, Closed Lid and as directed by the Engineer.

Measurement and Payment

This work will be measured and paid for at the contract unit price per cubic yard for FILL EXISTING SANITARY SEWERS, which price shall include all labor, equipment, excavation, controlled low-strength material for filling the pipe, pipe caps, earth backfill, and controlled low-strength material backfill.

X1200016 SANITARY SERVICE REPLACEMENT

Description

This work shall consist of locating existing sanitary sewer services, removing existing sanitary services from the front edge of proposed sidewalk to the existing connection at the mainline sewer, and constructing new sanitary sewer services of the required inside diameter. This work shall be performed in accordance with the "Sanitary Service Replacement Details" in the plans, as specified herein, and as directed by the Engineer.

Materials

The proposed sanitary sewer services shall be water main quality pipe in accordance with the specification for Sanitary Sewer 6".

The material for making the sanitary sewer connections shall be the following or approved equal:

- a. "Elastomeric Flexible Couplings" manufactured by Fernco Inc., 300 S. Dayton St., Davison, MI 48423, phone: (810) 503-9000, fax: (810) 653-8714.
- b. "Inserta Tee Fitting" manufactured by Advanced Drainage Systems, Inc., 401 Olive St., Findley, Ohio 45840, phone: (419) 424-8275, fax: (419) 424-8302.
- c. "Kor-N-Tee Saddle" manufactured by Trelleborg Engineered Products, P.O. Box 301, Milford, New Hampshire 03055, phone: 800-626-2180.
- d. "Flexible Tap Saddle" manufactured by Fernco Inc., 300 S. Dayton St., Davison, MI 48423, phone: (810) 503-9000, fax: (810) 653-8714.

Construction Requirements

The exact locations and depths of the existing sanitary sewer services are unknown. The Contractor shall be responsible for locating the sanitary sewer service connections and verifying the size, material type, and depth of the pipes. The existing sanitary sewer services shall be removed from the

front edge of the proposed sidewalks to the existing service connections at the mainline sewer or as directed by the Engineer.

The existing sanitary sewer service connections to the mainline sewer shall remain in place and the new sanitary sewer services shall be connected to the existing service connections with flexible couplings. The proposed sanitary sewer services shall be extended to connect to the existing services with flexible couplings at the front edge of the proposed sidewalks. Service cleanouts shall be added to the proposed sanitary sewer services when none exist. Existing service cleanouts between the front edge of the proposed sidewalk and the existing mainline sewer shall be replaced with the sanitary sewer service. The Contractor shall provide the necessary cleanouts and fittings of the same material as the proposed sanitary sewer service, with threaded caps marked "SANITARY". Cleanouts located within paved surfaces shall be provided with brass screw caps and recessed nuts. The entire excavation shall be backfilled with controlled low-strength material in accordance with Section 593 of the Standard Specifications.

At locations where the existing sanitary sewer service connections to the mainline sewer cannot be used, the existing service openings shall be reused as shown in Detail 1 or Detail 2 of the "Sanitary Service Replacement Details" and as directed by the Engineer. Where the existing opening is in good condition or the mainline sewer has been lined, a new tee fitting shall be inserted into the opening. Where the existing opening is in poor condition, a saddle with a tee fitting shall be used for the connection to the mainline sewer. All tee fittings and saddles shall be installed in accordance with the manufacturer's recommendations and as directed by the Engineer. This work will not be paid for separately but shall be included in the cost of the Sanitary Service Replacement, and no additional compensation will be allowed.

If an existing sanitary sewer service connection is determined by the Engineer to be abandoned, it shall be disconnected from the mainline sanitary sewer and removed. The opening in the sanitary sewer shall be capped as shown in the "Sanitary Service Connection to be Removed" detail in the plans and as directed by the Engineer. The opening in the mainline sewer shall be capped by placing steel or aluminum sheet metal, 0.012 inch minimum thickness, over the opening and clamping it to the mainline sewer with a minimum of two stainless steel clamps. The sheet metal shall be one piece of sufficient size to cover the entire opening. The stainless steel clamps shall be the 300 series type as manufactured by Fernco Inc., 300 S. Dayton Street, Davison, MI 48423 or approved equal. A Class SI concrete encasement shall be placed over the sheet metal to a minimum thickness of six inches in all directions. The entire excavation shall be backfilled with controlled low-strength material in accordance with Section 593 of the Standard Specifications. This work will not be paid for separately but shall be included in the cost of the Sanitary Service Replacement, and no additional compensation will be allowed.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for SANITARY SERVICE REPLACEMENT, which price shall include all labor, equipment, and material necessary to complete the work as specified, including locating, excavating, and removing the existing sanitary

sewer services; furnishing and installing the proposed sanitary sewer services with all required fittings, couplings, pipe connectors, saddles, and cleanouts; removing abandoned service connections; and backfilling with controlled low-strength material.

<u>X6022312</u>	<u>DROP SANITARY MANHOLES, WITH TYPE 1 FRAME, CLOSED LID</u>
<u>X6022810</u>	<u>MANHOLES, SANITARY, 4'-DIAMETER, TYPE 1 FRAME, CLOSED LID</u>
<u>X6022820</u>	<u>MANHOLES, SANITARY, 5'-DIAMETER, TYPE 1 FRAME, CLOSED LID</u>

Description

This work shall consist of furnishing and installing new sanitary manholes in accordance with the details shown in the plans, Section 32 of the Standard Specifications for Water and Sewer Construction in Illinois, and the applicable Articles of Section 602 of the Standard Specifications.

General Requirements

A. Submittals

1. Shop Drawings: Indicate manhole and structure locations, elevations, piping, and sizes and elevations of penetrations.
2. Product Data: Submit product data of manhole frames, lids, adjusting rings, chimney seals, and gaskets for approval. Submit frame and lid construction, features, configuration, and dimensions.

B. Delivery, Storage, and Handling

1. Comply with precast concrete manufacturer's instructions for unloading, storing, and moving precast manholes and structures.
2. Store precast concrete manholes and structures to prevent damage to City property or other public or private property. Repair property damaged from materials storage.
3. Mark each precast structure by indentation or waterproof paint showing date of manufacture, manufacturer, and identifying symbols and numbers shown on Drawings to indicate its intended use.

Materials

A. Manholes

1. Equivalent strength: Based on structural design of reinforced concrete as outlined in ACI 318.
2. Design of Lifting Devices for Precast Components: In accordance with ASTM C913.
3. Design of Joints for Precast Components: In accordance with ASTM C913; maximum leakage of 0.025 gallons per hour per foot of joint at 3 feet of head.
4. Manhole and Structure Sections:
 - a. Reinforced precast concrete in accordance with ASTM C478 with gaskets for connection to pipes in accordance with ASTM C923.
 - b. Base Pad: Precast concrete base riser with integral floor or separate base slab with riser section.
 - c. Shaft Construction: Concentric with eccentric cone top section; lipped male/female joints; sleeved to receive pipe.
 - d. Precast concrete eccentric cone or flat top shall be designed for H20 loading unless otherwise indicated.
 - e. Manhole frames shall be adjusted to proper grade utilizing Expanded Polypropylene (EPP) adjusting rings, Cretex Specialty Products or approved equal.
 - f. Shape: Cylindrical.
 - g. Clear Inside Dimensions and Depth: As indicated on Drawings.
 - h. Pipe Entry: Furnish openings as indicated on Drawings or required. Provide resilient, flexible boots/seals for all pipe entries, Kor-N-Seal or approved equal.
 - i. No manhole steps.
 - j. Provide precast or cast-in-place benches and fillets as indicated on Drawings.
 - k. Concrete Masonry Units: ASTM C55
 - l. Mortar: Type S (1800) psi mortar in compliance with ASTM C270 and C91.

5. Manhole and Structure Manufacturers:
 - a. County Materials Corp., Champaign, Illinois.
 - b. Klueter Brothers Concrete Products, Inc., Belleville, Illinois.
 - c. Darnell Concrete Products Company, Normal, Illinois.

- B. Frames and Lids
 1. The new frames and lids shall be Neenah Foundry number R-1713 with Type B self-sealing lids or approved equal, with "SANITARY" cast in the lids. When bolt-down lids are required, the casting shall be Neenah Foundry number R-1916-D or approved equal. Other manufacturers' frames and lids may be acceptable if the dimensions match. Shop drawings must be submitted at the preconstruction conference if a change in frame and lid manufacturer is desired.
 2. Product Description: ASTM A48/A48M, Class 30B cast iron construction, machined flat bearing surface, removable lid, closed cover design, and watertight. Pick holes shall not create openings through the manhole cover.
 3. Manhole Frame and Lid Manufacturers:
 - a. Neenah Foundry
 - b. East Jordan Iron Works
 - c. Approved Equal

- C. Mastic Sealant Manufacturer:
 1. Conseal CS-102B
 2. Approved Equal

- D. Chimney Seal Manufacturer:
 1. Cretex Specialty Products
N16 W23390 Stone Ridge Drive, Suite A
Waukesha, Wisconsin 53188
 2. Approved Equal

Construction Requirements

- A. Manhole and Appurtenances: The following items shall apply to all manholes and structures:
1. All frames and adjusting rings shall be securely sealed to the cone section or top barrel section of the manhole using resilient, flexible, non-hardening, preformed bituminous mastic material. This mastic shall be applied in such a manner that no surface water or ground water inflow can enter the manhole through gaps between the top ring, between adjusting rings, or between the last adjusting ring and the manhole frame.
 2. A continuous layer of resilient, flexible, non-hardening, preformed bituminous mastic material shall be applied to each manhole barrel, cone, and top section to provide a watertight seal.
 3. A non-cracking hydraulic cement or Portland mixture shall be used on all manhole interior joints excluding the top of cone to manhole joint.
 4. Flexible boots/seals shall be used where pipes enter the manhole. Boots/seals shall be resilient and shall comply with ASTM C923.
 5. Hydraulic cement, mortar, and concrete must be of strength and water tightness quality per ASTM standards.
 6. Chimney seals shall be provided and installed on all manholes.
 7. Exterior joints shall be wrapped with "MAC" wrap or similar product meeting ASTM C-877, Type II standards.

Installation

- A. Verify existing conditions before starting work.
- B. Verify items provided by other sections of Work are properly sized and located.
- C. Verify built-in items are in proper location, and ready for roughing into Work.
- D. Verify correct size of manhole and structure excavation.
- E. Preparation
 1. Coordinate placement of inlet and outlet pipe sleeves required by other sections.

2. Do not install structures where site conditions induce loads exceeding structural capacity of structures.
3. Inspect precast concrete structures immediately prior to placement in excavation to verify structures are internally clean and free from damage. Remove and replace damaged units as directed by the Engineer.

F. Masonry Manhole and Structure Installation

1. Concrete masonry block may only be used for repairs or modifications of existing masonry structures or the bottom ring of new structures in existing sewer lines. Masonry shall be laid with shove joints completely filled with mortar in accordance with ASTM C270 and C91. Horizontal joints shall not exceed 1/2-inch and vertical joints 1/4-inch on their interior face. Lay all blocks as headers, staggering vertical joints between courses. Strike interior and exterior joints smooth with the face of the wall.

G. Precast Concrete Manhole and Structure Installation

1. Lift precast components at lifting points designated by manufacturer.
2. When lowering manholes and structures into excavations and joining pipe to units, take precautions to ensure interior of pipeline and structure remains clean.
3. Set precast structures bearing firmly and fully on crushed stone bedding, compacted in accordance with provisions of this Section or on other support system shown on Drawings.
4. Assemble multi-section structures by lowering each section into excavation. Lower, set level, and firmly position base section before placing additional sections.
5. Remove foreign materials from joint surfaces and verify sealing materials are placed properly. Maintain alignment between sections by using guide devices affixed to lower section.
6. Joint sealing materials may be installed on site or at manufacturer's plant.
7. Verify manholes and structures installed satisfy required alignment and grade.
8. Remove knockouts or cut structure to receive piping without creating openings larger than required to receive pipe.
9. Cut pipe to finish flush with interior of structure.
10. Shape inverts through manhole and structures as shown on Drawings.

11. Precast concrete rings and reinforced concrete pipe sections shall be laid so that the axis of the manhole is vertical. Gaskets for riser joints shall be installed in accordance with the manufacturer's recommendations.

H. Frame and Lid Installation

1. The method for installing castings for structures within the limits of pavements shall be approved by the Engineer prior to constructing the pavement. All requirements for pavement smoothness and thickness adjacent to the castings will apply. The placement of castings for structures within the limits of pavements shall be in accordance with the applicable Articles of Sections 602 and 603 of the Standard Specifications, the details in the plans, and as specified herein. Refer to Standard 420111 for construction details where the castings are located within the PCC pavement areas.
2. Set frames using adjusting rings.
3. Set frame and lid at finished grade unless otherwise indicated on Drawings.

I. Leakproofing

1. All frames and adjusting rings shall be securely sealed to the cone section or top barrel section of the manhole using resilient, flexible, non-hardening, preformed bituminous mastic material. This mastic shall be applied in such a manner that no surface water or ground water inflow can enter the manhole through gaps between the top ring, between adjusting rings, or between the last adjusting ring and the manhole frame.
2. A continuous layer of resilient, flexible, non-hardening, preformed bituminous mastic material shall be applied to each manhole barrel, cone, and top section to provide a watertight seal.
3. A non-cracking hydraulic cement or Portland mixture shall be used on all manhole interior joints excluding the top of cone to manhole joint.
4. Chimney seals shall be provided and installed on all manholes.
5. Exterior joints shall be wrapped with "MAC" wrap or similar product meeting ASTM C-877, Type II standards.
6. Do not backfill adjacent to structures until coating has been inspected and any defective coverage is repaired.

J. Connections to Existing Manholes and Sewers

1. Connections at existing manholes shall be made in a manner to prevent damaging the structure and shall be made watertight where the connection is made, as specified under "Leakproofing". Openings shall be core drilled and rubber boots shall be installed.

K. Field Quality Control

1. Test concrete manhole and structure sections in accordance with ASTM C497.
2. Perform test on manholes in accordance with Article 32-12 of the Standard Specifications for Water and Sewer Construction in Illinois. Testing will be included in the cost of the manhole construction and will not be paid for separately.

L. Backfilling

1. The excavation in earth areas shall be backfilled in accordance with Article 602.12 of the Standard Specifications. Excavations in paved areas shall be backfilled with controlled low-strength material.

M. Leakage Tests for Structures

1. When concrete structures which are to hold water have been completed, except for waterproofing and backfilling, they shall be tested at the direction of the Engineer by filling with water at a rate to require at least 24 hours for filling.
2. Should leakage become evident at any point, or should the water level be lower as a result of leakage by any amount greater than one-quarter (1/4) inch in twenty-four (24) hours, exclusive of evaporation and absorption, leaks shall be repaired by methods acceptable to the Engineer. The value of loss due to evaporation shall be determined by using a flat metal pan or container of known area and setting in the same conditions (sun, wind, temperature, etc.) and determining the rate of evaporation per square foot. Structures shall be retested until satisfactory results are obtained.
3. Infiltration Testing of New Sanitary Sewer Manholes
 - a. Manholes shall be observed (tested) by the Contractor in the presence of the Engineer for sources of infiltration.

- b. Manholes observed to be actively leaking will not be acceptable and will have failed the test. Manholes failing the test will require rehabilitation by the Contractor at the Contractor's expense.
- c. Tests shall be in accordance with ASTM C1244-93 "Standard Test Method for Concrete Sewer Manholes by the Negative Pressure Vacuum Test", Vol. 04.05.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for DROP SANITARY MANHOLES, WITH TYPE 1 FRAME, CLOSED LID; MANHOLES, SANITARY, 4'-DIAMETER, TYPE 1 FRAME, CLOSED LID; or MANHOLES, SANITARY, 5'-DIAMETER, TYPE 1 FRAME, CLOSED LID, which prices shall include all work as shown on the plans and specified herein. This work shall include all labor, equipment and material including excavation, except rock excavation; locating existing sewer; furnishing and installing all components of the manhole as shown on the details in the plans; bedding and backfill, including controlled low-strength material backfill; testing; protection, replacement or repair of utilities, drainage systems, structures, homeowner's property and miscellaneous property; removal of surplus excavated material; and clean-up. The cost of constructing the manholes of various heights or depths will not be paid for separately and the cost shall be included in the cost of the manholes.

X6025600 MANHOLES TO BE ADJUSTED (SPECIAL)
X6026050 SANITARY MANHOLES TO BE ADJUSTED

Description

This work shall consist of adjusting existing sanitary manholes by removing the frames and lids, chimney seals, adjusting rings, concrete, or bricks and adjusting the structures to a new finished grade elevation. The work shall be performed in accordance with the applicable Articles of Sections 602 and 603 of the Standard Specifications, the details in the plans, as specified herein, and as directed by the Engineer.

Construction Requirements

The Contractor shall furnish and install new adjusting rings, chimney seals, and if necessary new frames with closed lids at the locations shown on the plans and as directed by the Engineer. The materials and installation for the chimney seals and adjusting rings shall be in accordance with the requirements of the specification for Manholes, Sanitary, 4'-Diameter, Type 1 Frame, Closed Lid. Reset existing frames and lids, carefully removed and cleaned of mortar fragments, to the required elevations in accordance with requirements specified for installation of the castings. The existing frames and lids that are in poor condition shall be replaced as directed by the Engineer. The replacement frames and lids shall be in accordance with the requirements of the specification for Frames and Lids, Special. Any excavation in the pavement subgrade below the aggregate base course shall be backfilled with controlled low-strength material.

Manholes to be Adjusted (Special)

Existing sanitary manholes in HMA resurfacing areas shall not be adjusted until the proposed resurfacing is constructed and the castings can be adjusted to final grade. An area of pavement measuring 5 feet (minimum) by 5 feet (minimum) shall be saw cut full depth and removed around the casting. The existing casting and adjusting rings shall be removed, and the opening in the existing concrete cone shall be temporarily covered with a steel plate of adequate thickness to support the weight of vehicles, construction equipment, and the temporary pavement patch to be constructed above the structure. The existing casting shall be stored at a location approved by the Engineer until it can be installed and adjusted.

The area above the structure shall be filled to the top of the adjacent surface with a temporary pavement patch consisting of 8 inches of Incidental Hot-Mix Asphalt Surfacing placed over a layer of Aggregate Base Course, Type B as shown on the detail in the plans.

Once the proposed pavement milling and resurfacing is complete, the Contractor shall saw cut the pavement, remove the temporary pavement patch and steel plate, and adjust the casting to grade as specified herein. The Contractor shall be responsible for locating the structure after it has been overlaid. Structures that are overlaid shall not remain covered for more than 10 working days before they are exposed and adjusted. Any damage done to the adjacent pavement to remain in place shall be repaired or removed and replaced as directed by the Engineer and at the Contractor's expense.

The castings shall be installed at the proper locations and shall match the final pavement surface. The permanent concrete pavement patches shall be constructed to the full depth of the adjacent pavement or to a minimum depth of 10 inches, whichever is greater, and shall include epoxy coated reinforcement bars as shown on the detail in the plans. The patches shall be protected until they have achieved the required strength and can be opened to traffic.

The concrete mix used for construction of the permanent concrete pavement patches shall consist of high-early-strength concrete and shall be an IDOT approved Class PP-2 mix in accordance with Section 1020 of the Standard Specifications. The concrete mix shall have an integral black color. The concrete mix shall obtain a minimum compressive strength of 1,600 psi or a minimum flexural strength of 300 psi prior to opening the patches to traffic in accordance with Article 701.17(e) of the Standard Specifications. The concrete mix shall obtain a minimum compressive strength of 3,200 psi or a minimum flexural strength of 600 psi in the time specified in Table 1 of Article 1020.04 of the Standard Specifications.

Completed work comprised of concrete that fails to meet the specified minimum strength requirements shall be paid for at a rate less than the established contract unit prices.

The payment rates shall be determined from the following equation:

$$R = U * \{(C_1 + C_2 + \dots + C_n) / (3,200 * n)\}$$

(Note: If flexural strength is used, substitute 600 for 3,200)

Where:

R = Reduced Rate of Payment

U = Unit Bid Price Established in the Contract Documents for Pay Item in Question

C = Compressive Strength (Flexural Strength) of Individual Test Specimen at the Specified Hours

n = Number of Test Specimens

The calculated payment rate shall be used only for that portion of the work represented by the test specimens. The Engineer shall keep detailed records of the locations where test specimens were obtained and the quantities of work completed in conjunction with that day's concrete pour. In no case shall the rate of payment exceed the contract unit price.

The concrete shall ultimately reach a compressive strength of 3,500 psi at 14 days. Any concrete that does not meet the final compressive strength requirement of 3,500 psi at 14 days shall be removed and replaced by the Contractor at his or her own expense.

Voids below the permanent concrete pavement patch shall be filled with Class PP-2 concrete as directed by the Engineer.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for MANHOLES TO BE ADJUSTED (SPECIAL) or SANITARY MANHOLES TO BE ADJUSTED, which prices shall include all excavation; removing frames and lids, concrete, adjusting rings, bricks, and chimney seals; furnishing and installing new adjusting rings and chimney seals; installing frames and lids; and backfilling with controlled low-strength material. Any new frames and lids required will be paid for separately as specified herein.

For Manholes to be Adjusted (Special), saw cutting and removing the existing pavement, furnishing and installing the steel plate and temporary pavement patch, saw cutting and removing the temporary pavement patch and steel plate, adjusting the casting to grade, and constructing the permanent concrete pavement patch with integral black color and epoxy coated reinforcement bars shall also be included in the cost of MANHOLES TO BE ADJUSTED (SPECIAL), and no additional compensation will be allowed.

X6026051 SANITARY MANHOLES TO BE RECONSTRUCTED

Description

This work shall consist of reconstructing existing sanitary manholes as shown on the details in the plans by removing the frames and lids, chimneys seals, adjusting rings, concrete, bricks, and cone sections and reconstructing the manholes to a new finished grade elevation at the locations shown on the plans and as directed by the Engineer. This work shall be performed in accordance with the applicable Articles of Sections 602 and 603 of the Standard Specifications, the details in the plans, as specified herein, and as directed by the Engineer.

Construction Requirements

After removing the top cone section of the manhole, the Contractor shall saw cut and remove a portion of the manhole barrel section to allow the manhole to be reconstructed at a lower elevation. If the existing cone sections are salvageable, they may be reused if approved by the Engineer; otherwise new precast concrete cone sections shall be furnished by the Contractor. The Contractor shall install the cone section on a bed of grout and furnish and install new adjusting rings, chimney seals, and if necessary new frames with closed lids. The materials and installation for the chimney seals and adjusting rings shall be in accordance with the requirements of the specification for Manholes, Sanitary, 4'-Diameter, Type 1 Frame, Closed Lid.

Reset existing frames and lids, carefully removed and cleaned of mortar fragments, to the required elevations in accordance with requirements specified for installation of the castings. The existing frames and lids that are in poor condition shall be replaced as directed by the Engineer. The replacement frames and lids shall be in accordance with the requirements of the specification for Frames and Lids, Special. Any excavation in the pavement subgrade below the aggregate base course shall be backfilled with controlled low-strength material.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for SANITARY MANHOLES TO BE RECONSTRUCTED, which price shall include all excavation; removing frames and lids, concrete, adjusting rings, bricks, chimney seals, and cone sections; furnishing and installing cone sections, adjusting rings, and chimney seals; installing frames and lids; and backfilling with controlled low-strength material. Any new frames and lids required will be paid for separately as specified herein.

X6026054 SANITARY MANHOLES TO BE REMOVED

Description

This work shall consist of removing existing sanitary manholes as shown in the plans and as directed by the Engineer. This work shall be performed in accordance with the applicable Articles of Section 605 of the Standard Specifications and as specified herein.

Construction Requirements

The existing sanitary manholes including bases shall be removed completely at the locations shown on the plans and as directed by the Engineer. Any holes, depressions, or voids left as result of the removal operations that are under or within two feet of the proposed improvements shall be backfilled with controlled low-strength material. Removal limits shall be backfilled and leveled to the satisfaction of the Engineer.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for SANITARY MANHOLES TO BE REMOVED, which price shall include all labor, equipment, and materials required for the satisfactory removal and backfilling of the existing sanitary manholes. No additional compensation will be allowed because of variations from the assumed structure type or for variations in the amount of reinforcement.

X6040205 FRAMES AND LIDS, SPECIAL

Description

This work shall consist of furnishing and installing new frames and lids for sanitary manholes at locations designated by the Engineer in accordance with Section 604 of the Standard Specifications and the requirements of the Urbana Champaign Sanitary District (UCSD).

Materials

The existing frames and lids that are in poor condition shall be replaced as directed by the Engineer. The new frames and lids shall be Neenah Foundry number R-1713 with Type B self-sealing lids or approved equal with "SANITARY" cast in the lids for City-owned manholes and "UCSD SANITARY" cast in the lids for UCSD-owned manholes. Where bolt down lids are required, the casting shall be Neenah Foundry number R-1916D or approved equal.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for FRAMES AND LIDS, SPECIAL, which price shall include furnishing and installing the new frames and lids.

A quantity has been included in the plans for the purpose of establishing a unit bid price. It is hereby understood that the City of Champaign reserves the right to delete any or all of this pay item quantity from the contract. Should the City of Champaign delete any or all of this pay item quantity from the contract, the Contractor will receive no remuneration for the deleted item.

XX004360 SANITARY SEWER BYPASS PUMPING

Description

This work shall consist of furnishing, installing, and maintaining a sanitary sewer bypass pumping system as approved by the Engineer. The Contractor shall be required to furnish all materials, labor, equipment, power, and maintenance necessary to implement a temporary pumping system for the purpose of diverting the existing sanitary sewer flows around the work areas while new sanitary sewers are being installed. The Contractor shall divert the flow around the work areas in a manner that will not cause damage to, or surcharging of other systems and will protect public and private property from damage and flooding. Multiple setups of the pumping equipment will be required throughout the duration of the project due to the staging of the project.

The design, installation, operation, and subsequent removal of the temporary pumping system shall be the Contractor's responsibility. The bypass system shall meet the requirements of all codes and regulatory agencies having jurisdiction including noise limits. If necessary the Contractor shall provide enclosures or sound deadening devices to limit the noise. Prior to starting work, the Contractor shall submit to the Engineer and UCSD for approval detailed plans and descriptions outlining all provisions and precautions to be taken by the Contractor regarding handling of existing sanitary sewer flows. This plan must be specific and complete, including such items as capacities of equipment, materials, and all other incidental items necessary and/or required to ensure proper compliance with the requirements.

The plan shall include but not be limited to the details of the following:

1. Staging areas for pumps.
2. Sewer plugging method and types of plugs.
3. Size of pipeline or conveyance system to be bypassed.
4. Bypass pump sizes, capacity, number of each size to be on site, and power requirements.
5. Standby power generator size and location.
6. Method of protecting discharge manholes or structures from erosion and damage.
7. Method of noise control for each pump and/or generator.

Measurement and Payment

This work will be measured and paid for at the contract lump sum price for SANITARY SEWER BYPASS PUMPING, which price shall include all labor, materials, and equipment necessary to implement the temporary pumping systems as required throughout the project, including multiple setups of pumping operations.

XX007759 ADJUST SANITARY SEWER CLEANOUT

Description

This work shall consist of adjusting existing sanitary sewer cleanouts as directed by the Engineer. The Contractor shall provide the necessary vertical cleanouts and fittings of the same material as the pipe with threaded caps marked "SANITARY". Cleanouts that are adjusted within paved surfaces shall be provided with brass screw caps and recessed nuts.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for ADJUST SANITARY SEWER CLEANOUT, which price shall include all labor, materials, and equipment specified herein. No additional compensation will be allowed for variations in the types of existing cleanout material, fittings, or caps.

<u>Z0056800</u>	<u>SANITARY SEWER 6"</u>
<u>Z0056900</u>	<u>SANITARY SEWER 8"</u>
<u>Z0057000</u>	<u>SANITARY SEWER 10"</u>
<u>Z0057400</u>	<u>SANITARY SEWER 21"</u>
<u>Z0057500</u>	<u>SANITARY SEWER 24"</u>

Description

This work shall consist of constructing sanitary sewers of the required type and inside diameter with the necessary couplings and fittings at locations shown on the plans and as directed by the Engineer. The sanitary sewers shall be constructed with water main quality materials at all locations, including locations to satisfy the requirements for horizontal and vertical separation between water mains and sanitary sewers and locations through conflict manholes. All work related to the construction of the sanitary sewers shall be in accordance with the details in the plans, the applicable Sections of the Standard Specifications for Water and Sewer Construction in Illinois, current edition, the I.E.P.A. Water Pollution Control Permit, and as specified herein.

Materials

All similar pipe components shall be manufactured and furnished by one manufacturer unless specifically approved by the Engineer in writing. All sanitary sewers shall be water main quality pipe.

Certification of Materials:

1. The City reserves the right to require material certification from the manufacturer prior to construction to ensure the material supplied conforms to the prescribed requirements.
2. Upon request, the Contractor shall furnish a certificate of conformance to the required ASTM, AWWA, and/or ANSI Standards, these specifications, and other conformance

certifications in the form of affidavits of conformance, test results, and/or copies of test reports.

The water main quality pipe used for the sanitary sewers shall be one of the following materials or types approved by the Engineer:

- a. Ductile iron pipe conforming to AWWA C150 with mechanical or push-on joints with rubber rings per ANSI 21.11 (AWWA C111 and C600). Pipes of 6", 8", and 10" diameters shall be Class 350, and pipes of 21" and 24" diameters shall be Class 250. Ductile iron pipe and fittings shall have an interior coating of Protecto 401 ceramic epoxy or polyethylene lining with minimum thickness of 40 mils in accordance with ASTM D1248 and shall be heat fused.
- b. Solid wall PVC pipe, SDR 26 or Schedule 40 conforming to ASTM D3034. Joints for SDR 26 pipe shall have push-on joints with bell end grove to receive a synthetic rubber gasket or flexible elastomeric seals conforming to ASTM D3212 and F477. Schedule 40 PVC pipe joints shall be solvent-cemented in accordance with ASTM D2564. All PVC pipe shall be PVC 1120 pressure pipe made from Class 12454 material as defined by ASTM D-1784 with outside diameter dimensions of steel or cast iron pipe.

Ductile iron pipe shall be used at the locations identified in the plans, including the continuous sanitary sewer pipe runs through conflict manholes, and as directed by the Engineer.

Flexible Couplings:

- a. "Elastomeric Flexible Couplings" and "Strong Back RC Series Coupling" shall be the type manufactured by Fernco Inc., 300 S. Dayton Street, Davison, MI 48423, Phone: (810) 503-9000, Fax: (810) 653-8714, or approved equal.
- b. "Pipe to Manhole Couplings" shall be the type manufactured by Trelleborg Kor-N-Seal or approved equal.

Each length of pipe shall be clearly marked at a minimum with the following: manufacturer's name, tradename or trademark, nominal pipe size, pipe stiffness, production code, and ASTM number.

Flanges, elbows, reducers, tees, wyes, laterals, and other fittings shall be capable of withstanding the same stresses as the pipe to which they are connected.

Pipe ends shall be squared to the pipe axis with a maximum tolerance of 1/8".

Joints at connections to existing pipes shall be made with flexible couplings as specified herein.

Pipe possessing the following defects may be rejected for installation:

- a. Variation from straight centerline; elliptical shape; illegible markings as required herein; deep or excessive gouges or scratches of the pipe wall or liner; fractures, punctures, or cracks passing through the pipe wall; damaged ends where such damage would prevent making a satisfactory joint; voids in the pipe walls; delamination, cracking, and crazing of liner or pipe wall; or other noticeable defects in pipe manufacture.

Vertical cleanouts and fittings shall be of the same material as the pipe with threaded caps marked "SANITARY". Cleanouts located within paved surfaces shall be provided with brass screw caps and recessed nuts.

Construction Requirements

As specified herein, the Contractor shall be responsible for bypass pumping of sanitary sewer flows until the new sanitary sewers are installed.

The exact locations and depths of the existing sanitary sewers are unknown. Where connections are to be made to existing sanitary sewers, the Contractor shall be responsible for locating the sanitary sewers and verifying the size, material type, and depth of the pipes. The existing sewer pipe shall be cut and removed to provide a smooth vertical end.

All sanitary sewers shall be installed in accordance with all applicable Sections of the Standard Specifications for Water and Sewer Construction in Illinois as modified herein.

The sanitary sewers shall be constructed with water main quality materials at all locations, including locations to satisfy the requirements for horizontal and vertical separation between water mains and sanitary sewers and locations through conflict manholes. Ductile iron pipe shall be used at the locations identified in the plans, including the continuous sanitary sewer pipe runs through conflict manholes, and as directed by the Engineer.

General

- a. Sanitary sewer installation shall be in accordance with Division II, Sections 20-3 and 20-4 and Division III, Sections 31 and 33. The sewer trenches shall be protected in accordance with in Section 20-4.03 and the use of double trench boxes will also be allowed.
- b. Horizontal and vertical separation between water mains and sanitary sewers shall be in accordance with Division IV, Section 41-2.01.
- c. Residents shall be notified a minimum of 48 hours in advance of impending service outages and no residence shall be without service overnight.

Installation

- a. Pipe shall be installed in accordance with the manufacturer's specifications and recommendations.
- b. All lengths of pipe shall be dimensioned accurately to measurements established at the site, and shall be worked into place without springing or forcing.
- c. The Contractor shall cut all pipe and drill all holes that may be necessary. Cut sections of pipe shall be reamed or filed to remove all burrs. The pipe interior and joints shall be thoroughly cleaned before being installed and kept clean during construction.
- d. All changes in direction shall be made with fittings or approved joint deflection. Bending of pipe is prohibited.
- e. Make adequate provision for expansion and contraction of piping.
- f. A granular cradle (bedding and haunching) shall be required for all sanitary sewers as shown on the details in the plans and in accordance with Section 20-4.05 of the Standard Specifications for Water and Sewer Construction in Illinois.
- g. Dewatering of Trench: Where water is encountered in the trench, the water 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.
- h. Pipe embedment and backfilling shall closely follow the installation and jointing of pipe in the trench, to prevent floating of the pipe by water which may enter the trench, and to prevent longitudinal movement caused by thermal expansion or contraction of the pipe. Not more than 25 feet of pipe shall be exposed at any time ahead of the backfilling in any section of trench.
- i. Clean joint contact surfaces prior to jointing. Use lubricants, primers, or adhesives as recommended by the pipe or joint manufacturer. Dirt and other foreign material shall be prevented from entering the pipe or pipe joint during handling or laying operations.
- j. Unless otherwise required, lay all pipe straight. Excavate bell holes for each pipe joint. When jointed, the pipe shall form a true and smooth pipeline.
- k. Support pipe connecting to a structure with granular bedding, cradle, or encasement, to a point six (6) inches outside of the structure excavation.
- l. The Engineer reserves the right to order pipe installation discontinued whenever, in his or her opinion, there is danger of the quality of work being impaired because of cold weather. The Contractor shall be responsible for heating the pipe and jointing material so as to prevent freezing of joints. No flexible or semi-rigid pipe shall be laid when the air temperature is less than 32°F unless proper precautions, per the manufacturer's recommendations, are taken by the Contractor and the method is approved by the Engineer. When pipes with rubber gaskets or resilient-type joints are to be laid in cold weather, sufficiently warm the gasket or joint material to facilitate making a proper joint. No portion

of a sanitary sewer facility shall be installed directly onto frozen ground or backfilled with frozen material.

- m. Sanitary sewer services shown on the drawings are approximate locations only. The Contractor shall field verify each sanitary service prior to transferring service over to the new separate sanitary sewer.
- n. All trenches under another sewer or water main, or under or within two feet of existing or proposed streets, sidewalks, or driveways shall be backfilled with controlled low-strength material as shown on the sanitary sewer trench detail in the plans.
- o. Until such time as a minimum of four (4) feet of compacted fill material has been placed over the installed sewer, lateral, or force main, the Contractor shall not use heavy equipment in such a way as to cause damage to these pipelines or structures.
- p. Plug pipelines at the end of each day's progress. Utilize plugs or other positive methods of sealing at all times to protect any existing system from entrance of storm water or other foreign matter.
- q. Any pipe or fitting that has been installed with dirt or foreign material in it shall be cleaned and re-inspected. At times when pipe laying is not in progress, and at the end of each working day, the open end of the pipe shall be closed with a watertight plug to ensure absolute cleanliness inside the pipe. The Engineer may request mechanical cleaning (jet flushing) if necessary to ensure clean, acceptable pipes, at the Contractor's expense.
- r. The trench shall be filled or covered with steel plates at the end of each day. At any time the trench is open there shall be an employee of the Contractor present to provide safety for the pedestrians and vehicles in the area.
- s. The Contractor shall notify the Engineer when the sewer is ready for testing. The ground shall be leveled and all manholes shall be accessible to the air testing equipment.

Plugs

- a. Installed piping systems shall be temporarily plugged at the end of each day's work, or other interruption to progress on a given line. Plugging shall be adequate to prevent entry of storm water, small animals, or persons into the pipe or the entrance or insertion of deleterious materials.
- b. Standard plugs shall be inserted into all dead-end pipes; spigot ends shall be capped; flanged and mechanical joint ends shall have blind flanges of metal.
- c. Plugs installed for pressure testing shall be blind flanges fully secured and blocked to withstand the test pressure.
- d. Where plugging is required because of contract division or phasing for later connection, the ends of such lines shall be equipped with a permanent type plug or blind flange. Installation or removal of such plugging shall be considered incidental to the work.

Pipe Joints

- a. Mechanical Joints: Pipe with mechanical joints shall be laid according to the manufacturer's specifications. Socket and gasket shall be clean and gasket shall be properly centered before joint is made.
- b. Push-On Type Joints: Any foreign matter in the gasket seat shall be removed, the rubber gasket wiped clean, flexed and placed in the socket. A thin film of lubricant shall be applied to the inside surface of the gasket which will come in contact with entering plain end pipe. Joint assembly shall then be completed by forcing the plain end of the entering pipe past the gasket until it makes contact with the bottom of the socket.
- c. Gasket Joint Pipe: The inside of the bell shall be thoroughly cleaned to remove all foreign matter from the joint. The gasket shall be inserted in the gasket seat provided. A thin film of gasket lubricant shall be applied to inside surface of the gasket. Gasket lubricant shall be a solution of vegetable soap or other solution supplied by the pipe manufacturer and approved by the Engineer. The spigot end of the pipe shall be cleaned and entered into the rubber gasket in the bell, using care to keep the joint from contacting the ground. The joint shall then be completed by forcing the plain end to the seat of the bell. Care must be taken not to damage exterior coating or interior lining when joining the pipe. Field cut pipe lengths shall be beveled to avoid damage to the gasket and facilitate making the joint. All pipe shall be furnished with a depth mark to assure that the spigot end is inserted to the full depth of the joint.

Manhole Connections

- a. The pipe to manhole couplings shall be installed according to the manufacturer's specifications.

Testing and Acceptance of Sewer

- a. All testing shall be scheduled and observed by the Engineer.
- b. Sanitary sewer pipe testing shall be performed by the Contractor in accordance with Division III, Section 31-1.12 A, D and E. Add the following to Division III, Section 31-1.13 D: Mandrel manufacturer shall be by Hurco Technologies or Cherne Industries Inc. or approved equal.
- c. Testing for acceptability of the sanitary sewers shall be conducted by Low Pressure Air Test (Exfiltration).
- d. Test manholes in accordance with ASTM C1244-11.

- e. Test each section of gravity pipeline between structures after backfilling, separately with equipment and methods as outlined below.
- 1) Furnish facilities required including necessary piping connections, test pumping equipment, pressure gauges, bulkheads, regulator to avoid over pressurization, and miscellaneous items required.
 - 2) Air testing techniques shall be in accordance with the latest ASTM standard practice for testing sewer lines by low-pressure air test method for the appropriate pipe material. All sewers twenty-four (24) inches and less shall be tested by means of a low-pressure air test to detect damaged piping and/or improper jointing. Testing shall be done per ASTM F1417–11A for flexible and semi-rigid pipe.

If air test fails to meet requirements, repeat test as necessary after leaks and defects have been repaired. Prior to acceptance all constructed sewer lines shall satisfactorily pass the low pressure air test.

Measurement and Payment

This work will be measured and paid for at the contract unit price per foot for SANITARY SEWER of the size indicated on the plans. Sanitary sewer will be measured in lineal feet along the centerline of the pipe including fittings. This work shall include all labor, equipment, and material necessary to construct the sanitary sewer including all excavation, except rock excavation; clearing and grubbing; locating and connecting to existing sanitary sewers and manholes; furnishing and installing flexible or transition fittings for dissimilar pipe materials; furnishing and installing pipe, fittings, and cleanouts; concrete encasements; all testing; bedding, haunching, and earth backfill; removal of surplus excavated material; and clean-up.

The Contractor is responsible for protection, replacement, or repair of utilities, drainage systems, structures, homeowner's property, and miscellaneous property damaged by his or her operations.

Bypass pumping and controlled low-strength material will be paid for separately as specified herein.

LANDSCAPE SPECIFICATIONS

35101600 AGGREGATE BASE COURSE, TYPE B 4"

Description

This work shall consist of the construction of an aggregate base course in accordance with Section 351 of the Standard Specifications and the details in the plans. The aggregate base course shall be constructed below the 3" concrete base for the concrete pavers as shown in the plans.

Measurement and Payment

This work will be measured and paid for at the contract unit price per square yard for AGGREGATE BASE COURSE, TYPE B 4", which price shall include all labor, equipment, and material necessary to complete the work as specified.

A2002520 TREE, CARPINUS CAROLINIANA (AMERICAN HORNBEAM), 2-1/2" CALIPER, BALLED AND BURLAPPED

A2004568 TREE, GINKGO BILOBA MAGYAR ARISTOCRAT (MAGYAR ARISTOCRAT GINKO), TREE FORM, 3" CALIPER, BALLED AND BURLAPPED

A2004617 TREE, GLEDITSIA TRIACANTHOS VAR. INERMIS DRAVES (STREET KEEPER HONEYLOCUST), 2-1/2" CALIPER, BALLED AND BURLAPPED

B2000568 TREE, AMELANCHIER CANADENSIS (SHADBLOW SERVICEBERRY), 7' HEIGHT, SHRUB FORM, BALLED AND BURLAPPED

XX006570 TREES (SPECIAL)

Pay Item Notes

The pay item "Trees (Special)" includes the following species:

1. Tree, Acer Rubrum Armstrong (Armstrong Gold Maple), 2-1/2" Caliper, Balled and Burlapped
2. Tree, Gleditsia Triacanthos Var. Inermis Draves (Street Keeper Honeylocust), 6" Caliper, Balled and Burlapped
3. Tree, Metasequoia Glyptostroboides 'Gold Rush' (Gold Rush Dawn Redwood), 2-1/2" Caliper, Balled and Burlapped
4. Tree, Nyssa Sylvatica 'JFS-RED' (Firestarter Tupelo), 2-1/2" Caliper, Balled and Burlapped

Description

This work shall consist of furnishing, transporting, and planting woody plants such as trees and shrubs. The work shall also include all bracing, wrapping, watering, weeding, replacement of plants when required, and all work described herein. This work shall be performed in accordance with Section 253 of the Standard Specifications and the following revisions.

Delete the third sentence of Article 253.07 and substitute the following:

The Contractor shall place the marking flags, clearly labeled with the common name, for each individual tree and outline each area for mass or solid planting. The Contractor shall contact the Engineer at least 72 hours prior to any digging to verify the layout.

Delete the fourth paragraph of Article 253.10 and substitute the following:

Trees and shrubs shall be thoroughly watered with a method approved by the Engineer. Place backfill in 6 inch-thick layers. Work each layer by hand to compact backfill and eliminate voids. Maintain plumb during backfilling. When backfill is approximately 2/3 complete, saturate backfill with water and repeat until no more water can be absorbed. Place and compact remainder of backfill and thoroughly water again. 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.

Add the following to Article 253.10(e):

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 tree bed. Remove any debris created in the spade edging process and disposed of as specified in Article 202.03.

Delete Article 253.11 and substitute the following:

Within 48 hours after planting, mulch shall be placed around all plants in the entire mulched bed or saucer area specified to a depth of 3 inches. No weed barrier fabric will be required for tree and shrub planting. Pre-emergent Herbicide shall be used instead of weed barrier fabric. Use a Pre-emergent Herbicide which contains an 18-0-4 ratio and includes a post-emergent control. The Pre-emergent Herbicide shall be applied prior to mulching. Mulch shall not be in contact with the base of the trunk.

Delete Article 253.12 and substitute the following:

Any paper or cardboard trunk wrap must be removed before placing the tree in the tree hole in order to inspect the condition of the trunks. A layer of commercial screen wire mesh shall be wrapped around the trunk of all deciduous trees. All other plants planted individually shall be similarly wrapped when directed by the Engineer. The screen wire 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 the lowest major branch.

Add the following to Article 253.13:

Trees required to be braced shall be braced within 24 hours of planting.

Measurement and Payment

Trees will be measured for payment in place as individual plants. Only acceptable plants will be measured for payment. This work will be paid for at the contract unit price each for TREE, of the species, plant size, and root type specified or TREES (SPECIAL), which prices shall include all labor, equipment, and material necessary to complete the work as specified. Payment will be made according to the schedule identified in Article 253.17 of the Standard Specifications.

K0012970 PERENNIAL PLANTS, BULB TYPE

K0012990 PERENNIAL PLANTS, ORNAMENTAL TYPE, GALLON POT

Pay Item Notes

The pay item “Perennial Plants, Bulb Type” includes the following species:

1. Bulb, Allium Globemaster (Flowering Onion), 5-6 cm, Bulb
2. Bulb, Narcissus ‘Ice Follies’ (Daffodil), 5-6 cm, Bulb

The pay item “Perennial Plants, Ornamental Type, Gallon Pot” includes the following species:

1. Perennial, Asclepias Incarnata (Swamp Milkweed), Gallon Pot
2. Perennial, Asclepias Tuberosa (Butterfly Weed), Gallon Pot
3. Perennial, Calamagrostis Brachytricha (Korean Feather Reed Grass, Gallon Pot
4. Perennial, Carex Frankii, (Franks Sedge) Gallon Pot
5. Perennial, Echinacea Purpurea (Purple Coneflower), Gallon Pot
6. Perennial, Eleocharis Obtusa (Spike Bush) Gallon Pot
7. Perennial, Helenium ‘Sahin’s Early Flowerer’ (Sneezeweed), Gallon Pot
8. Perennial, Iris Sibirica Caesar’s Brother’, Ceaser’s Brother Iris, Gallon Pot
9. Perennial, Leucanthemum X Superbum ‘Becky’, Becky’ Shasta Daisy, Gallon Pot
10. Perennial, Liatris Spicata ‘Kobold’, Kobold Blazing Star, Gallon Pot
11. Perennial, Panicum Virgatum ‘Shenandoah’ (Shenandoah Switch Grass), Gallon Pot
12. Perennial, Rudbeckia Fulgida ‘City Garden’ (Black Eyed Susan), Gallon Pot
13. Perennial, Stokesia Laevis ‘Klaus Jelitto’ (Stockes Aster), Gallon Pot

Description

This work shall consist of furnishing, transporting, and planting perennial plants which includes all planting material within planter curbs, terrace planting beds behind the retaining walls adjacent to the embankment, and bioswale. This work shall be performed in accordance with Section 254 of the Standard Specifications and the following revisions.

Add the following to Article 254.06:

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:

- 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.
- Fertilizer nutrients shall be added and applied to the perennial beds at a 5:3:2 ratio as follows:

Nitrogen Fertilizer Nutrients	90 lbs/acre (100 kg/ha)
Phosphorus Fertilizer Nutrients	54 lbs/acre (60 kg/ha)
Potassium Fertilizer Nutrients	36 lbs/acre (40kg/ha)

This fertilizer shall be tilled and cultivated into the soil to a depth of 6-inches (150 mm) and will not be paid for separately but shall be included in the planting soil pay item.

- Planting beds shall use planting soil as defined in the technical specification for Planting Soil Mix Furnish and Place 24”.

Delete the first sentence of Article 254.07 and substitute the following:

Within 24 hours, the entire perennial plant bed shall be mulched to a depth of 3 inches (75 mm) with fine grade Shredded Mulch. A mulch sample shall be submitted to the Engineer for approval 72 hours prior to placing. Care shall be taken not to bury leaves, stems, or vines under mulch material.

Delete Article 254.08(b) and substitute the following:

Perennial plants must undergo a 30-day period of establishment. Additional watering shall be performed not less than 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.

Add the following to Article 254.08:

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.

Measurement and Payment

This work will be measured for payment in units of 100 perennial plants of the type and size specified. Measurement for payment of this work will not be performed until the end of the 30 day establishment period for the replacement planting. Only plants that are in place and alive at the time of measurement will be measured for payment.

This work will be paid for at the contract unit price per unit for PERENNIAL PLANTS, of the type and size specified, which price shall include all labor, equipment, and material necessary to complete the work as specified, including all required watering and the removal and disposal of debris that results from the weeding operation.

K1005481 SHREDDED BARK MULCH 3”

Description

This item shall consist of furnishing, transporting, and placing shredded hardwood bark mulch in areas shown in the plans and details and as directed by the Engineer.

Materials

The Contractor shall supply and install shredded hardwood bark mulch as required to mulch around trees, shrubs, and herbaceous plants in landscaped areas.

The Contractor shall remove all litter and plant debris before mulching. The Contractor shall repair grade by raking in topsoil as needed, before mulching. 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 a uniform surface and appearance. All work areas shall be cleaned of debris and mulch, prior to leaving the site.

Hardwood bark mulch shall be clean, finely shredded mixed-hardwood bark, not to exceed two (2)

inches in its largest dimension, free of foreign matter, sticks, stones, and clods. All hardwood mulch shall be processed through a hammermill. Hardwood bark not processed through a hammermill shall not be accepted.

A composition report, test report, sample, and request for material inspection form shall be supplied to the Engineer for approval prior to performing any work.

Place mulch layer around plants as follows:

Perennials, including bulbs, ground cover, vines, and grasses:

Three (3) inches deep – keep mulch away from crowns of plants.

Shrubs, including shrubs and roses:

Three (3) inches deep – keep mulch away from stems, crown, or neck of shrub.

Trees, shade and ornamental:

Three (3) inches deep – keep mulch away from the trunk of the tree.

Measurement and Payment

This work will be measured for payment in place and in units of square yards of mulch installed, as described herein. This work will be paid for at the contract unit price per square yard for SHREDDED BARK MULCH 3”, which price shall include all labor, equipment, and material necessary to complete the work as specified. This item will not be paid by load tickets.

X0326981 ENGINEERED SOIL FURNISH AND PLACE (SPECIAL)

Description

This work shall consist of furnishing and placing Engineered Soil at the bioswale along Third Street including the furnishing and installing of the geotextile fabric.

This material is a blend that must be manufactured following the best practices for blending itemized within this specification to assure a reasonable level of homogenization.

Materials

Materials shall be according to the following Articles of the Standard Specifications:

	<u>Article</u>
(a) Fine Aggregate (Note 1)	1003.06
(b) Topsoil	1081.05(a)

Note 1: It is strongly suggested that the fine aggregate that is added to the blend consist of natural Quartz or Silica Sand only of a pH not to exceed 7.0. Other sands such as Orthoclase, Albite, Anorthite, Mica, and Calcite have higher pH readings that may raise the pH of the

Blend and may be undesirable if the pH of the Blend is raised above 7.5. Sand must be of an FA 2 size range as specified in Article 1003.01 of the Standard Specifications.

Materials for the geotechnical fabric shall meet the requirements of Section 1080.05 of the Standard Specifications.

Construction Requirements

In general the Engineered Soil (Blend) shall consist of (2) parts topsoil and (1) part coarse (Quartz or Silica) sand of a low pH not to exceed a pH of 7.0. The sand, in the amount required to produce an acceptable planting soil within the percentages specified, shall be added and mixed during the pulverization process only. Care must be taken to assure that the amount of the sand added to the blend in combination with the naturally occurring sand within the topsoil, does not exceed the maximum percentage of sand specified (33%). Mixing in any way, other than mechanical pulverization, is not acceptable. The soil blend shall be stored in stockpiles at the producer's or supplier's facility and shall be protected from erosion, absorption of excess water, and contamination at all times. Delivery to the job site shall only occur after the Engineer has reviewed and approved the laboratory testing results provided by the Contractor and obtained by Quality Control (QC). A sample one quart in size in a zip lock bag labeled with the project number, date and location collected along with the laboratory testing results must be provided no later than 60 days in advance of installation based on the Contractor's construction schedule. Final approval of the Engineered Soil shall be based on testing performed by the Contractor's Quality Control (QC) on project samples collected at the source and on testing performed by the Engineer's Quality Assurance (QA) on project samples collected at the source. All sampling of soil blends shall follow USGA (Quality Control Sampling of Sand and Rootzone Mixture Stockpiles) sampling standards for the Contractor's Quality Control (QC).

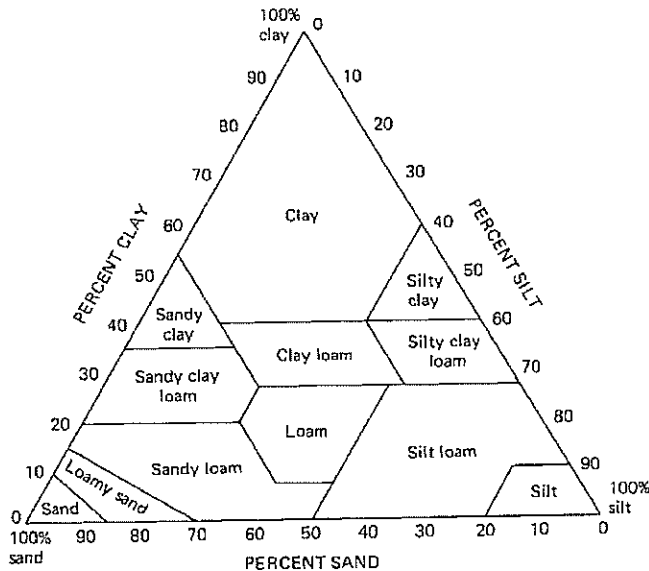
A mechanical and chemical analysis shall be performed on the soil blend sample and the results shall fall within the following limits. The mechanical analysis may be completed prior to performing the chemical analysis. If the results of the mechanical analysis are within the specified limits, then a chemical analysis shall be performed on the soil blend sample to determine if the results fall within the specified limits.

Mechanical Analysis	Minimum	Maximum
Clay content	0%	28% (+2.8)
Silt content	(- 4.5) 45%	77% (+7.7)
Sand content	(-2.5) 25%	33% (+3.3)
Organic content	(-0.5) 5%	10% (+ 1)

Confidence intervals shown in parentheses for each component will be allowed in the determination of final test results.

The content of these items have a minimum and maximum amount. The resulting content will be evaluated by the Engineer and if found to be reasonable by the Engineer the stockpile represented by

the sample(s) will be deemed acceptable as it relates to these items only. The sample(s) must also meet the remaining mechanical and chemical requirements for final approval.



The mechanical analysis should show that the % sand, % silt, % clay and organic matter. The plotted percentages must fall within the Sandy Loam, Loam, Clay Loam, Silty Clay, Silty Clay Loam, or Silt Loam soil classifications (see the Textural Classes diagram above). To determine the class plot a line parallel to the % clay axis starting the line at the value of the % silt. Plot another line parallel to the % sand axis starting the line at the value of the % clay. The intersection of these lines must be in the silt loam region, for the soil to be approved.

Chemical Analysis of Desired Plant Nutrient Levels

General Components	Minimum	Maximum
• pH value	5.5	7.5
• Cation Exchange Capacity	8	12
Primary Plant Essential Nutrients	Minimum	Maximum
• Phosphorous content	30	> 50 ppm
• Potassium	90	240 ppm
Secondary Plant Nutrients	Minimum	Maximum
• Magnesium	60	1000 ppm
• Calcium	600	5500 ppm
• Sulfur	10	40 ppm
• Soluble Salts	0	1.7 mmhos
• Sodium	0	200 ppm

Excessive Sulfur readings will be considered unacceptable and may result in sample rejection. No chemical additives will be allowed to be added to the stock-piled material or the test samples.

There will be no tolerance allowed for Soluble Salts above the specified maximum of 1.7 mmhos or Sodium content in excess of 200 ppm.

Submittals

Upon the completion of all mechanical and chemical analyses, a final report prepared by the certified testing laboratory, detailing these results shall be submitted to the Engineer for review. The final report shall include the project number, project name, source of material, quantity of material represented by the samples, and the recommendations for chemically enhancing the soil's characteristics in order to meet the intent of the application.

Placement

Prior to placing the engineered soil mix, all final adjustments to any utility structures within the bioswale area must be completed and accepted by the Engineer. The bioswale area shall be free of all trash and debris before placement begins. If geotechnical fabrics and/or drainage layers have been specified, the condition of these items shall be intact and free of holes, tears, or defects that may inhibit their function. Any deficiencies found shall be repaired by the Contractor without any additional cost to the City.

Place, spread, and rough grade the soil to depths specified on the plans. The soil mix shall be placed in two lifts. The first lift shall be 2/3 of the engineered soil depth specified on plans. After placing each lift, saturate the surface at a rate sufficient to hydraulically settle the soil, or as determined by the Engineer. Allow the water to thoroughly percolate through the soil before placing the next lift. Soil mix placed and found to be unacceptable by the Engineer shall be removed and replaced at no cost to the City with a soil mix in accordance with the specifications and as approved by the Engineer. The Contractor shall be responsible for repairing any damage caused during the removal and replacement operation, which includes, but is not limited to, plant material, underdrains, aggregate, geotechnical fabric, sidewalk, curb and gutter, pavements, planters, etc. Any additional traffic control required to remove and replace any soil mix found to be unacceptable by the Engineer and/or perform said repairs shall be at no cost to the City.

Rake smooth and finish grade all planted areas. The removal of excess material or the addition of engineered soil may be required prior to landscaping. This shall be considered incidental to the cost of engineered soil and will not be paid for separately. The finished grade shall be within ± 0.10 feet of the design grade while allowing the necessary room for placement and mixing of organics as required by the Engineer.

All debris, litter, tire tracks, dirt, and unintended materials shall be removed, swept, or washed off of all landscape, paved surfaces, and pavement on a daily basis.

No equipment will be allowed to drive on the installed Engineered Soil during or after installation.

Material must be installed in a manner that precludes any compaction from installation equipment. Soils deemed to be compacted to a percent greater than 85% will be removed and replaced at no additional cost to the City.

QC/QA Requirements

Quality control testing is required by the producer or supplier to verify compliance with the specification prior to delivery. The pH and mechanical results must be within the tolerances specified in this specification prior to performing any Quality Assurance testing by the Engineer. Upon the completion of acceptable QC results for both mechanical and chemical properties, the Engineer will conduct job site Quality Assurance testing to verify the results obtained by QC and determine if the mechanical and chemical results are acceptable.

Testing

The mechanical testing and chemical analysis requirements listed above must be conducted by QC at the frequency listed below. Confirmation or QA testing under the direction of the Engineer will be a percentage of the total tests performed by QC as determined by the Engineer. QA testing performed by the Engineer will only be conducted once all of the soil mix has been delivered to the site and a final representative composite sample can be obtained.

<u>Soil Quantity (c.y.)</u>	<u>Number of Tests**</u>
< 200	1
200 – 1000	3
> 1000	$\left[\frac{(\text{Quantity} - 1000)}{500} \right] + 3^{***}$

** When more than one test is performed, the average of the test results will be used to determine acceptance.

*** The resulting value shall be rounded up to the nearest whole number.

Both the Contractor’s testing laboratory and the Engineer’s testing laboratory shall follow the same set of Standard ASTM Soil Tests as follows:

- ASTM F1632-95 Standard Test Method for Particle Size Analysis and Sand Shape Grading
- ASTM F1647-98 Standard Test Method for Organic Matter Content
- ASTM D4972-95a Standard Test Method for pH of Soils

The Contractor shall be responsible for reporting the type of test utilized for each section of the Soil Test Report provided.

Certifications

All testing shall be completed by laboratories approved to perform the testing detailed above. Mechanical testing and chemical testing may be completed by different laboratories as long as each laboratory is certified to perform the tests for which they have provided results. Agricultural

laboratories conducting the testing must be an active member of the Illinois Soil Testing Association (ISTA) and currently certified under ISTA's Laboratory Proficiency Testing Program. Standard material testing laboratories may only perform the mechanical tests provided they are AASHTO accredited to conduct those testing procedures.

Acceptance

Due to shipping and sampling variances, an additional tolerance, as noted in the Mechanical Analysis Table will be used to evaluate the acceptance of the Engineered Soil based on Engineer's QA test results as they relate to the sand, silt, and clay contents. Mechanical test results that are within these tolerances will be considered acceptable. Results from the remaining Mechanical and Chemical Analysis will be evaluated based on the applicable tolerances and the recommendations provided by the testing laboratories. Soil placement shall only occur after final review and approval by the Engineer.

Natural occurring soils in situ that meet the requirements of this specification are acceptable.

Measurement and Payment

This work will be measured for payment in cubic yards in place after all means of consolidation have been applied and deemed satisfactory by the Engineer. The volume of soil will be computed by the method of average end areas. This work will be paid for at the contract unit price per cubic yard for ENGINEERED SOIL FURNISH AND PLACE (SPECIAL), which price shall include all labor, equipment, and material necessary to complete the work as specified, including all necessary excavation, furnishing and placing the soil and geotechnical fabric, and any other work needed to complete the installation of the engineered soil.

X0327124 PRECAST CONCRETE RISER
XX007321 PRECAST PLANTER EDGE TYPE 1
XX007322 PRECAST PLANTER EDGE TYPE 2

Pay Item Notes

The pay item "Precast Concrete Riser" is identified in the plans and specifications as "PRECAST PLANTER EDGE TYPE 3".

Description

This work shall consist of furnishing, placing, and installing Precast Planter Edges in accordance with the details in the plans. The work shall include the 8" thick reinforced concrete slab foundation in accordance with applicable portions of Section 353 of the Standard Specifications, aggregate base course in accordance with applicable portions of Section 351 of the Standard Specifications, mortar leveling bed, and mortar joints. Contractor is responsible for any damage incurred to Precast Planter Edges during installation.

Materials

CONCRETE MATERIALS

Portland Cement: ASTM C 150, Type I or Type III, of same type, brand, and source.

Normal-Weight Aggregates: Except as modified by PCI MNL 116, ASTM C 33, with coarse aggregates complying with Class 4S.

Water: Potable; free from deleterious material that may affect color stability, setting, or strength of concrete and complying with chemical limits of PCI MNL 116.

Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.

Fly Ash Admixture: ASTM C 618, Class C or F.

GROUT MATERIALS

Nonmetallic, Nonshrink Grout: Premixed, nonmetallic, noncorrosive, nonstaining grout containing selected silica sands, Portland cement, shrinkage-compensating agents, plasticizing and water-reducing agents, complying with ASTM C 1107, of consistency suitable for application.

Epoxy Grout: ASTM C 881, 2-component epoxy resin, of type, grade, and class to suit requirements.

CONCRETE MIXES

Prepare design mixes for each type of concrete required.

Limit use of fly ash and silica fume to not exceed, in aggregate, 25 percent of Portland cement by weight.

Design mixes may be prepared by a qualified independent testing agency or by qualified precast plant personnel at precast structural concrete fabricator's option.

Limit water-soluble chloride ions to the maximum percentage by weight of cement permitted by ACI 318.

Normal-Weight Concrete: Proportion mixes by either laboratory trial batch or field test data methods according to ACI 211.1, with materials to be used on Project, to provide normal-weight concrete with the following properties:

Compressive Strength (28 Days): 4000 psi.

Maximum Water-Cementitious Materials Ratio: 0.40.

Add air-entraining admixture at manufacturer's prescribed rate to result in normal-weight concrete at point of placement having an air content as follows, with a tolerance of plus or minus 1-1/2 percent.

Concrete Mix Adjustments: Concrete mix design adjustments may be proposed if characteristics of materials, Project conditions, weather, test results, or other circumstances warrant.

Color: Submit limestone color samples for Owner's/Engineers selection.

Finish: Honed Finish

FABRICATION

Formwork: Accurately construct forms, mortar tight, of sufficient strength to withstand pressures due to concrete-placement operations and temperature changes and for pretensioning and detensioning operations. Maintain formwork to provide completed precast concrete units of shapes, lines, and dimensions indicated, within fabrication tolerances.

Coat surfaces of forms with bond-breaking compound before reinforcement is placed. Provide commercial-formula, form-coating compounds that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces requiring bond or adhesion. Apply in compliance with manufacturer's written instructions.

Unless forms for precast, prestressed concrete units are stripped before detensioning, design forms so stresses are not induced in precast concrete units because of deformation or movement of concrete during detensioning.

Reinforcement: Comply with recommendations in CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

Reinforcement shall be deformed bars according to ASTM A615.

Reinforcement shall be included in sections to ensure safe handling and setting. Provide reinforcement per manufacturer's recommendations. At a minimum provide amount of reinforcement equal to 0.20% of the cross sectional area for members longer than 24 inches. Provide 1½ inches minimum clear cover for reinforcing bars. Individual reinforcing bars shall have cross sectional area not exceeding 0.31 square inches.

Clean reinforcement of loose rust and mill scale, earth, and other materials that reduce or destroy the bond with concrete.

Accurately position, support, and secure reinforcement against displacement by formwork, construction, or concrete-placement operations. Locate and support reinforcement by metal chairs, runners, bolsters, spacers, and hangers, as required.

Place reinforcement to obtain at least the minimum coverage for concrete protection. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position while placing concrete. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.

Supports: Manufacturer's bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place according to CRSI's "Manual of Standard Practice," PCI MNL 116, and as follows:

For uncoated reinforcement, use CRSI Class 2 stainless-steel bar supports

Mix concrete according to PCI MNL 116 and requirements in this Section. After concrete batching, no additional water may be added.

Place concrete in a continuous operation to prevent seams or planes of weakness from forming in precast concrete units. Comply with requirements in PCI MNL 116 for measuring, mixing, transporting, and placing concrete.

Thoroughly consolidate placed concrete by internal and external vibration without dislocating or damaging reinforcement and built-in items. Use equipment and procedures complying with PCI MNL 116.

Comply with ACI 306.1 procedures for cold-weather concrete placement.

Comply with ACI 305R recommendations for hot-weather concrete placement.

Identify pickup points of precast concrete units and orientation in structure with permanent markings, complying with markings indicated on Shop Drawings. Imprint casting date on each precast concrete unit on a surface that will not show in finished structure.

Cure concrete, according to requirements in PCI MNL 116, by moisture retention without heat or by accelerated heat curing using low-pressure live steam or radiant heat and moisture.

Product Tolerances: Fabricate precast structural concrete units straight and true to size and shape with exposed edges and corners precise and true so each finished unit complies with PCI MNL 116 product tolerances.

Finish formed surfaces of precast structural concrete as indicated for each type of unit, and as follows:

Honed Finish: Use continuous mechanical abrasion with fine grit, followed by filling and rubbing procedures.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for PRECAST CONCRETE RISER, PRECAST PLANTER EDGE TYPE 1, and PRECAST PLANTER EDGE TYPE 2, which prices shall include all labor, equipment, and material necessary to complete the work as specified, including the mortar joints, mortar leveling bed, 8" thick reinforced concrete slab foundation, and aggregate base course.

X0327814 PLANTING SOIL MIX FURNISH AND PLACE, 24"

Description

This item shall consist of furnishing, transporting, and placing Planting Soil in areas as described herein and per the direction of the Engineer.

General Requirements

The Contractor shall supply and install Planting Soil for installation of trees, shrubs, and herbaceous plants in landscaped areas.

A composition report, test report, sample, and request for material inspection form shall be supplied to the Engineer for approval prior to performing any work.

Soils report: Submit results of laboratory soil tests for topsoil for planting. Contractor shall provide soil tests prior to delivery to the site. Employ an independent testing lab using methods approved by the Association of Agricultural Chemists to test two samples of topsoil mixture.

Soil mix sample: One (1) quart of each proposed soil mix and product information.

Materials

Soil Mixes: Planting Soil in all planting beds shall consist of 30% sand with grain size 1/4-1/2 mm, clean and not silty, 50% topsoil and 20% peat moss. This mixture shall be used for tree, shrub, ground cover and perennial areas, or other areas specified. Planting soil mixture shall have a pH value range of 5.5 to 7.0. If the Planting Soil does not fall within the required pH range, limestone or aluminum sulfate shall be added to bring the pH within the specified limit.

Measurement and Payment

This work will be measured for payment in place and in units of square yards and paid for at the contract unit price per square yard for PLANTING SOIL MIX FURNISH AND PLACE, 24", which price shall include all labor, equipment, and material necessary to complete the work as specified. This item will not be paid by load tickets.

X3510407 AGGREGATE BASE COURSE, TYPE CA-7

Description

This work shall consist of furnishing, placing, and compacting non-limestone porous aggregate material on a prepared subgrade in accordance with Section 311 of the Standard Specifications and the following requirements.

Materials

The aggregate material shall be crushed or uncrushed coarse aggregate. Limestone shall not be permitted. The material shall be placed at the locations shown in the plans and to the thickness specified in the plans.

Quality: The coarse aggregate shall be A Quality.

Gradation: The gradation for the subbase layer shall be CA 7.

Preparation of Subbase

The coarse aggregate subbase shall be placed in 6-inch maximum lifts. Lightly compact each layer with equipment, keeping equipment movement over storage bed subgrade to a minimum. Should subbase material be disturbed due to construction equipment, the subbase layer shall be lightly

regraded before laying the surface layer. Aggregate shall be placed to grades as indicated on the plans.

Following placement of subbase aggregate, the geotechnical fabric shall be folded back along all bed edges to protect from sediment washout along bed edges. This edge strip shall remain in place until all bare soils contiguous to beds are stabilized and vegetated. In addition, take any other necessary steps to prevent sediment from washing into beds during site development. When the site is fully stabilized, temporary sediment control devices shall be removed.

Measurement and Payment

This work will be measured and paid for at the contract unit price per ton for AGGREGATE BASE COURSE, TYPE CA-7, which price shall include all labor, equipment, and material necessary to complete the work as specified, including furnishing, placing and compacting the material needed to prepare the subgrade.

X6061005 CONCRETE CURB, TYPE B (SPECIAL)

Description

This work shall consist of furnishing, placing, and installing concrete curb, Type B for barrier curb at the edge of the concrete pavers along the bioswale. The work shall be performed in accordance with the details in the plans and the applicable portions of Section 606 of the Standard Specifications.

Measurement and Payment

This work will be measured for payment in feet along the face of concrete curb and paid for at the contract unit price per foot for CONCRETE CURB, TYPE B (SPECIAL), which price shall include all labor, equipment, and material necessary to complete the work as specified, including reinforcement bars and compacted aggregate base as shown on the plans.

XX000959 TRASH RECEPTACLES

Description

This work shall consist of furnishing and installing new Trash Receptacles. The Contractor is responsible for furnishing and installing new Trash Receptacles with concrete foundations according to the details in the plans, and for any damage incurred to Trash Receptacles during installation.

Materials

Design based on Trash Receptacles Model: S-42 Trash Receptacles from the Ironsites® Series, with anchor bolt embedded in 30" deep concrete foundation, manufactured by Victor Stanley, Inc., P.O. Drawer 330, Dunkirk, MD 20754 USA. Toll Free: (800) 368-2573 (USA & Canada). Phone: (301) 855-8300. Fax: (410) 257-7579. E-mail: sales@victorstanley.com. Website: www.victorstanley.com.

Other acceptable manufacturers include:

Forms and Surfaces
Maglin

3/8" x 1" (10mm x 25mm) vertical solid steel bar; 1/4" x 2-1/2" (6mm x 64mm) horizontal solid steel bands; 3/8" x 3" (10mm x 76mm) steel support bars; 5/8" (16mm) solid steel top ring; leveling feet with a 3/8" (10mm) diameter threaded steel shaft.

Plastic Inner Liners: Molded with structural ribs and integral handholds. 36-gallon (136 liter) capacity high density plastic liner [weight not to exceed 6 lbs. (2.72kg)].

Color: Black.

Recycling Receptacles shall be blue and black in accordance with the construction details and the City's current standards. Recycling Receptacles shall receive recycling decal provided from the manufacturer.

All fabricated metal components are steel shotblasted, etched, phosphatized, preheated, and electrostatically powder-coated with TGIC polyester powder coatings. Products are fully cleaned and pretreated, preheated and coated while hot to fill crevices and build coating film. Coated parts are then fully cured to coating manufacturer's specifications. The thickness of the resulting finish averages 8-10 mils (200-250 microns).

Hot-dip galvanize before powder coating. Hot-dip galvanizing shall be performed by an experienced qualified firm. Hot-dip galvanizing includes an aggressive pre-treatment and immersion in a tank of charged liquid zinc at or around 860°F (460°C).

Concrete for trash receptacle foundations shall be Class SI in accordance with Section 1020 of the Standard Specifications.

Submittals

Trash Receptacles: Shop drawings or catalog cut.

Fasteners: Catalog cut.

Certifications: Submit manufacturer's certification that the tubing and coatings meet the project specifications.

Construction Requirements

Clearance for 3/4" (19mm) square anchor bolt hole(s) (anchor bolts not provided by Victor Stanley, Inc.). It is not recommended to locate anchor bolts until receptacle is in place. This Victor Stanley, Inc. product must be permanently affixed to the ground. Consult local codes for regulations.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for TRASH RECEPTACLES, which price shall include all labor, equipment, and material necessary to complete the work as specified, including all required concrete foundations and mounting hardware.

XX005238 TOPSOIL FURNISH AND PLACE, VARIABLE DEPTH

Description

This work shall consist of furnishing, placing, and installing topsoil in accordance with the applicable portions of Section 211 of the Standard Specifications, the details in the plans, and the following requirements.

The topsoil shall be used for trees in sod and trees in grates. It shall also be used as the fill for the tree wells.

Measurement and Payment

This work will be measured for payment in place and in units of cubic yards and paid for at the contract unit price per cubic yard for TOPSOIL FURNISH AND PLACE, VARIABLE DEPTH at the depths shown on plans and details, which price shall include all labor, equipment, and material necessary to complete the work as specified. This item will not be paid by load tickets.

XX005425 LANDSCAPE BOLLARDS

Description

This work shall consist of furnishing and installing new surface mounted Bollards according to the details in the plans. Contractor shall be responsible for any damage incurred to Bollards during installation.

Materials

Design based on Bollard Model: Annapolis Standard Bollard, 6" nominal Diameter Annapolis, Non-lit, Surface Mounted, manufactured by Landscape Forms, Inc., 431 Lawndale Avenue, Kalamazoo, Michigan 49048. Toll Free: (800) 521-2546. Phone: (269) 381-0396. Fax: (269) 381-3455. Website: www.landscapeforms.com. E-mail: specify@landscapeforms.com.

Other acceptable manufacturers include:

Forms and Surfaces

Maglin

The Bollard must be fabricated from tubular Domestic (U.S. manufactured) Structural Steel, in accordance with ASTM A500 Grade B, 2'-9" high, 6" in outside diameter. Color of the coating must be black. Bollard Cap must be aluminum casting.

The coating must be applied only after the Bollard has been fabricated.

The final product will be rejected if the coating cracks, ripples in the curved areas or is otherwise damaged due to the fabrication and/or shipping.

Finish on Metal, Except Removable Bollard Socket: Landscape Forms, Inc. "Pangard II".

1. Primer: Rust inhibitor.
2. Topcoat: Thermosetting TGIC polyester powder coat. UV, chip, and flake resistant.
3. Test Results: "Pangard II".
 - a. Gloss Consistency, Gardner 60 Degrees, ASTM D 523: Plus or minus 5 percent from standard.
 - b. UV Resistance, Color and Gloss, ASTM G 155, Cycle 7: Delta E less than 2 at 2.0 mils and less than 20 percent loss.
 - c. Cross-Hatch Adhesion, ASTM D 3359, Method B: 100 percent pass.
 - d. Flexibility Test, Mandrel, ASTM D 522: 3 mm at 2 mils.
 - e. Erichsen Cupping, ISO 1520: 8 mm.
 - f. Impression Hardness, Buchholz, ISO 2815: 95.
 - g. Impact Test, ASTM D 2794: 60 inch-pounds at 2.5 mils.
 - h. Pencil Hardness, ASTM D 3363: 2H minimum.
 - i. Corrosion Resistance, 1,500-Hour Test, ASTM B 117: Max undercutting 1 mm.
 - j. Humidity Resistance, 1,500-Hour Test, ASTM D 2247: Max blisters 1 mm.

Submittals

Bollards: Shop drawings or catalog cut.

Fasteners: Catalog cut.

Certifications: Submit manufacturer's certification that the tubing and coatings meet the project specifications.

Samples: Submit 3-12" long samples of the tubing with finish coat and 4 fasteners.

Construction Requirements

Bollards must be located according to the plans. Mounting of the Bollard must be surface mounted. Locations of bollards to be verified in the field. Furnishing and installing anchor bolts and leveling washers are incidental to Bollard installation. Siting of bollards to be coordinated with the Engineer.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for LANDSCAPE BOLLARDS, which price shall include all labor, equipment, and material necessary to complete the work as specified, including all mounting hardware.

XX005642 GATEWAY MONUMENT SIGN COMPLETE

Description

This work shall consist of furnishing, erecting, and painting the Gateway monument sign at the location designated on the plans. This work includes drilled shaft foundations, structural concrete, masonry, structural steel, precast copings and spheres, painting of steel, reverse channel backlit lettering, electrical wires and conduits, lighting appurtenances, shop drawing submittals, and mockups.

Prepare all designated metal surfaces by the method(s) specified on the plans. Paint all designated surfaces with the paint system(s) specified on the plans. Furnish all materials, equipment, labor, and other essentials necessary to accomplish this work and all other work described herein and as directed by the Engineer.

Sequence of Work

Provide submittal before fabrication as indicated within this provision. The sequence of the constructed work shall be that the concrete drilled shafts, foundation caps, and steel columns shall be erected prior to fabrication of the center HHS section and the Gateway sign panels. After erection of the steel columns, the distance and alignment between the field splice locations shall be measured by the Contractor. Shop drawings shall be revised according to the submittal requirements.

Test Fit and Demonstration

The center HSS section including the mounting arms, Gateway sign panels, letters, and conduits shall be test fit in the shop by fully assembling with all bolts inserted and nuts snug. Lights and power supplies shall be connected and tested.

The Contractor shall notify the City of Champaign and Engineer that the test fit pieces are fully assembled and reverse channel backlit letters are powered and fully functioning. Provision shall be made for the Engineer and City of Champaign representatives to examine the test fit. During the visit the Contractor shall power the lights and demonstrate removal and reinstallation of a sign letter.

Submittal Requirements

A minimum of 30 days before fabrication begins, the Contractor shall submit the following:

- 1) Drilled Shafts: Submit Qualifications and Installation Procedure in accordance with Article 516.04 of the Standard Specifications.
- 2) Concrete Reinforcement: Submit shop drawings prepared in accordance with ACI 315, Manual of Standard Practice for Detailing Reinforced Concrete Structures. Drawings shall indicate bending diagrams, shapes, dimensions, clearances, splicing and lap lengths, accessories, and installation notes.

- 3) Structural Steel: Submit shop drawings in accordance with Article 505.03 of the Standard Specifications. Due to the sequence of work, submit revised shop drawings as necessary after erection of the concrete drilled shafts, foundation caps, and steel columns. The need for revision shall be based on field measurements made by the Contractor. These shop drawings shall be coordinated with and in conjunction with shop drawings for the Gateway sign panel.
- 4) Gateway Sign Panel:
 - i. Submit 12 inch x 12 inch samples of stainless steel used to form letters with specified finish. Submit 12 inch x 12 inch samples of clear Lexan used for backing of letters.
 - ii. Submit detailed shop drawings for steel panel sections and all letters including all standoff locations and conduit locations. Shop drawings for sign panels and lettering shall be coordinated with and in conjunction with shop drawings for Structural Steel.
- 5) Electrical Components:
 - i. Shop Drawings: Provide shop drawings showing location of electrical service splice point, power supply locations, and conduit locations with respect to structural members, Gateway sign panels, and individual letters. Shop drawings shall dimension length of wire used between power supply units and individual letters.
 - ii. Data Sheets: Provide manufacturer's data sheets for specified lighting system including power supply units.
- 6) Painting System and Qualifications: A minimum of 30 days prior to shop painting, the Contractor shall submit i) Shop Qualifications, ii) Quality Control (QC) Personnel Qualifications, iii) Quality Control (QC) Program, and iv) Surface Preparation/Painting Plan in accordance with Article 506.03 of the Standard Specifications. Additionally, the Contractor shall submit the name of the paint manufacturer and products to be used. Submit three 8-1/2 inch by 11 inch samples of each scheduled color for approval.
- 7) Masonry:
 - i. Materials: Provide manufacturer's information for thin brick facade masonry units. Include manufacturer's certificate that masonry units meet or exceed specified requirements. Provide sample bricks two weeks prior to installation of mock-up.
 - ii. Mockup: Construct a masonry wall as a mock-up panel sized 4 feet long by 4 feet high, which includes mortar and accessories and concrete masonry unit backup. Mockup shall match common brick pattern indicated on plans and shall be built adjacent to mockup required for BRICK FACADE. Locate where directed by the Engineer.

- 8) Precast Coping:
- i. Shop Drawings: Detail of fabrication and installation of precast concrete units indicating number, location, plans, elevations, dimensions, shapes, cross sections, openings, and types of reinforcement, including special reinforcement. Indicate welded connections by AWS standard symbols. Detail loose and cast-in hardware, inserts, connections, and joints, including accessories. Indicate locations and details of anchorage devices to be embedded in other construction.
 - ii. Samples: (1) 6 inch x 12 inch size for color and texture.

The following material test reports shall be submitted:

- 1) Portland Cement Concrete: Provide material test results according to CONCRETE STRUCTURES (SPECIAL).
- 2) Precast Coping: From a qualified testing agency indicating and interpreting test results of: i) Compressive Strength, ii) Air Content, and iii) Water Cement Ratio.

General Construction Requirements

After erection of all components at the site shown on the plans, inspect all components include paint finishes, steel plates, stainless steel letters, masonry work, and precast work for damage that has occurred. Repair all damaged portions including touch up of paint, replacement of non-functioning lights, and replacement or repair of damaged steel components to the satisfaction of the Engineer and as required elsewhere within these specifications.

The Contractor shall demonstrate to the Engineer that the lighted sign is fully functioning and all connections for electrical wires, components, and hand holes are watertight.

Repair of Defective Lights and Electrical System

It shall be the Contractor's responsibility to fix or repair nonfunctioning lights within letters and to repair or make other repairs necessary for the lights to properly function for a period of (1) one year after demonstration to the Engineer of the fully functioning sign as erected in the field. This work shall include removing and reinstalling individual letters from the Gateway sign panels as needed.

Cleaning and Protection

After installation, clean all soiled sign surfaces using means and materials compatible with finish surfaces to the satisfaction of the Engineer. Contractor shall protect sign from damage that could be caused by the Contractor's construction activities in adjacent areas.

Specific Construction Requirements

1. Drilled Shafts

This work shall be performed according to Section 516 of the Standard Specifications and as required on the plans.

2. Concrete Structures

This work shall be performed according to the special provision for CONCRETE STRUCTURES (SPECIAL) and as required on the plans.

3. Structural Steel

This work shall be performed according to Section 505 of the Standard Specifications and as required on the plans.

4. Cleaning and Painting New Steel Structures

The structural steel components and gateway sign panels shall be painted according to Section 506 of the Standard Specifications and as required on the plans.

5. Masonry and Thin Brick Facade

The work shall consist of providing all materials, labor, equipment, and supervision necessary to provide thin brick facade and concrete masonry backup, and installing as specified, as required on the plans, and as required by the manufacturer of the thin brick units. This work shall be in accordance with ACI 530 Building Code Requirements for Masonry Structures.

a. Thin Brick Units

Thin brick shall be according to ASTM C 1088, Exterior Grade meeting weathering index SW, type TBS or TBX.

Manufacturers:

- Belden Bricks, Inc: www.beldenbrick.com.
- Endicott Clay Products Co: www.endicott.com.
- Substitutions: Approved equal.

b. Joint Reinforcement, Ties and Anchors

All materials shall be stainless steel.

6. Precast Concrete Sphere Coping

a. Description

Contractor shall provide all equipment and materials to do all work necessary to furnish and install precast concrete sphere coping on top of Gateway piers as indicated on the drawings. The work shall be in accordance with the details in the plans and the applicable portions of Section 1042 of the Standard Specifications. This work shall be coordinated to match in appearance the precast wall caps specified in LIMESTONE CAP.

b. Materials

Concrete Material Requirements:

- Compressive Strength 5000 p.s.i.
- Air Content 6-8% MAX
- Water-Cement Ratio 0.45:1

Pigment: Pigment for integrally colored concrete shall be added and mixed per the Manufacturer's recommendations in coordination with the fabricator. The amount of dry colored pigment shall not exceed 10 percent by weight of the cementitious materials in the concrete mix design.

Pigment for Integrally Colored Concrete. The pigment shall meet the requirements of ASTM C 979, with limestone color. Acceptable products shall be selected among the following or an approved equal:

- Uni-Mix® Integral Color by Butterfield Color (630-906-1980)
- Mix-Ready® by Davis Colors (800-638-4444)
- ChromixP by Scofield Systems (800-800-9900)
- ColorFlo® Dry Integral Color by Solomon Colors Inc. (800-624-0261)

Manufacturer/Installer shall warrant installed system for a period of (1) one year from date of substantial completion against failure of workmanship and materials.

Anchorage: Furnish anchorage items to be embedded in other construction without delaying the Work. Provide setting diagrams, templates, instructions, and directions, as required, for installation.

Molds: Provide molds as indicated on drawings, form-facing materials of metal, plastic, wood, or another material that is nonreactive with concrete and dimensionally stable to produce continuous and true precast concrete surfaces within fabrication tolerances and suitable for required finishes.

Color: Limestone.

Finish: Honed.

c. *Fabrication Requirements*

Formwork: Accurately construct forms, mortar tight, of sufficient strength to withstand pressures due to concrete-placement operations and temperature changes and for pretensioning and detensioning operations. Maintain formwork to provide completed precast concrete units of shapes, lines, and dimensions indicated, within fabrication tolerances.

Coat surfaces of forms with bond-breaking compound before reinforcement is placed. Provide commercial-formula, form-coating compounds that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces requiring bond or adhesion. Apply in compliance with manufacturer's written instructions. Unless forms for precast, prestressed concrete units are stripped before detensioning, design forms so stresses are not induced in precast concrete units because of deformation or movement of concrete during detensioning.

Built-in Anchorages: Accurately position built-in anchorage devices and secure to formwork. Locate anchorages where they do not affect position of main reinforcement or concrete placement. Do not relocate bearing plates in units unless approved by Engineer. Thoroughly consolidate placed concrete by internal and external vibration without dislocating or damaging reinforcement and built-in items. Use equipment and procedures complying with PCI MNL 116.

Identify pickup points of precast concrete units and orientation in structure with permanent markings, complying with markings indicated on Shop Drawings. Imprint casting date on each precast concrete unit on a surface that will not show in finished structure.

Product Tolerances: Fabricate precast structural concrete units straight and true to size and shape with exposed edges and corners precise and true so each finished unit complies with PCI MNL 116 product tolerances.

Finish formed surfaces of precast structural concrete as indicated for each type of unit, and as follows:

- Honed Finish: Use continuous mechanical abrasion with fine grit, followed by filling and rubbing procedures.
- Type: Precast, prestressed structural concrete framing units.
- Furnish units free of voids and honeycombs.
- Provide standard finish to precast concrete units.
- Reinforce units to resist transportation and erection stresses.
- Coordinate with other trades for installation of cast-in items.

d. *Installation Requirements*

Examine substrates and conditions for compliance with requirements for installation tolerances, true and level bearing surfaces, and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

Fasteners: Do not use drilled or powder-actuated fasteners for attaching accessory items to precast, prestressed concrete units unless approved by Engineer.

Erection Tolerances: Install precast concrete units level, plumb, square, and true, without exceeding the recommended erection tolerances in PCI MNL 127, "Recommended Practice for Erection of Precast Concrete."

Clean exposed surfaces of precast concrete units after erection to remove weld marks, other markings, dirt, and stains. Wash and rinse according to precast concrete fabricator's written recommendations. Protect other work from staining or damage due to cleaning operations. Do not use cleaning materials or processes that could change the appearance of exposed concrete finishes.

7. Gateway Sign Panel Letters & Lighting

a. Description

Contractor shall provide all equipment and materials to do all work necessary to furnish and install stainless steel reverse channel letters with LED lights secured to painted steel gateway sign panels.

b. Materials & Products

- 1) Gateway sign panels shall be according ASTM A36 steel.
- 2) Gateway sign panel fasteners shall be according to ASTM A325 and shall be hot-dipped galvanized with painted heads and washers.
- 3) Reverse channel letters front face and sides shall be stainless steel Type 304.
- 4) Reverse channel letters backing shall be clear Lexan.
- 5) Standoffs for letter including bolts nuts and washers shall be stainless steel Type 304.
- 6) Electrical conduit to reverse channel letters shall be stainless steel Type 304.
- 7) LED Module Lighting System: Manufacture by General Electric Lighting Solutions, 888-694-3533 (www.gelighting.com), product model GEPM32-W1, Tetra PowerMAX 3200K – LED with GEPS12W-60 Tetra LED Systems Power Supply. Two power supplies are required. Each power supply shall feed LED lighting on five letters. No substitutions allowed. Provide wiring between splice point and power supplies consisting of 2-#8, 1-#8 Ground.

c. Fabrication Requirements

Gateway Sign Panels: Fabricate sign panels from plate steel material to fit dimensions and tolerances shown on plans. Fabricate panels and preparing for painting according to Sections 505 and 506 of the Standard Specifications.

Reverse Channel Letters: Form letters by heliarc welding process. Produce characters with smooth flat faces, sharp corners, precisely formed lines and profiles, free from pits, scale, sand holes and other defects. Apply anchoring devices and electrical conduit into individual letters as required for anchorage. Provide watertight seal between standoffs and electrical conduits and clear Lexan backing.

- 1) Size: As indicated on drawings.
- 2) Font: Futurist Fixed Width (digital font file available from Engineer).
- 3) Finish: Directional Satin stroke sanded face, bead-blasted return.
- 4) Mounting: Stainless steel standoffs as shown on drawings with threaded rod fastener.
- 5) Electrical Conduit: Stainless steel conduits as shown on drawings with threaded ends.
- 6) Backing: Clear Lexan back laser cut to fit within letter channel installed flush to back of letter. Drill holes for mounting hardware. Attach backing to L brackets glued to inside letter channel.
- 7) Text: CAMPUSTOWN

Light Module Placement: Space LED modules so that the space between each module is consistent between each letter to ensure equal light distribution. Place modules along individual letter centerline as indicated on drawings. Provide conduit with coupling behind sign panel for each Reverse Channel Letter.

Lead Wire for Lighting: The same length of lead wire between power supplies and each letter shall be supplied regardless of distance between power supply and letter.

d. *Installation Requirements*

Fully coordinate mounting locations with sign panel fabrication, reverse channel letter fastener locations, and lighting conduit. Neatly loop excess lead wire between power supplies and letters without interweaving individual leads. Leads shall be able to be pulled without knotting. Make final connection of sign wiring to branch circuit wiring at splice location.

Locate sign units and accessories where indicated, using mounting methods of the type described and in compliance with the manufacturer's instructions.

Install signs plumb, and at the rotation and height indicated with sign surfaces free from distortion or other defects in appearance.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for GATEWAY MONUMENT SIGN COMPLETE at the designated location shown on the plans. This price shall include all labor, materials, equipment, and submittals necessary to perform the work shown on the plans and specified herein including excavations, drilled shafts, concrete structure, structural and decorative steel components, masonry, precast copings, lighting, electrical components, painting, and finishing.

XX005735 PLANTER CURB

Description

This work shall consist of constructing reinforced concrete planter curb in accordance with the applicable portions of Section 606 of the Standard Specifications, the details in the plans, and the following requirements. Fence post sleeves shall be Type 304 stainless steel with a 2" inside diameter. Compacted aggregate base installed below the planter curb shall be in accordance with the applicable portions of Section 351 of the Standard Specifications.

Measurement and Payment

This work will be measured for payment in feet along the face of planter curb and will be paid for at the contract unit price per foot for PLANTER CURB, which price shall include all labor, equipment, and material necessary to complete the work as specified, including reinforcement bars, fence post sleeves, and compacted aggregate base as shown on the plans.

XX006429 SIDEWALK, SPECIAL

Description

This work shall consist of constructing a 3” thick concrete base with 1” diameter weep holes below concrete pavers in accordance with the applicable portions of Section 424 of the Standard Specifications, the details in the plans, and the following requirements. The top surface of the concrete shall not vary more than one-quarter inch (¼”) from its proposed elevation.

Measurement and Payment

This work will be measured and paid for at the contract unit price per square foot for SIDEWALK, SPECIAL, which price shall include all labor, equipment, and material necessary to complete the work as specified.

XX006677 TREE WELL

Description

This work shall consist of furnishing and installing Tree Wells, including geotextile, geogrids, aggregate, sub base material, 10” spikes, backfill, drainage system, root barrier, and the installation of planting soil, in accordance with the details in the plans and the following requirements.

Materials

Fiberglass-reinforced polypropylene structures including frames and decks designed to support sidewalk loads and designed to be filled with soil for the purpose of growing tree roots, and rainwater filtering, detention and retention.

Frames: 400 mm x 600 mm x 1200 mm (16 inches x 24 inches x 48 inches).

Deck: 5 cm x 600 mm x 1200 mm (2 inches x 24 inches x 48 inches). Deck to include manufactured installed galvanized steel tubes.

Tree Well strongbacks: 400 mm x 600 mm x 150 mm (24 inches x 48 inches x 6 inches) modified frame units designed to stiffen and align the frames as planting soil and backfill material are placed. Tree Well strongbacks are to be removed prior to placing decks. They are to be reused as the work progresses.

Deck Screws: Manufacturer’s supplied stainless steel screws to attach decks to frames.

Acceptable Manufacturers:

1. DeepRoot Partners, L.P. (Deep Root); 530 Washington Street, San Francisco, CA 94111; 415.781.9700; 800.458.7668; fax 415.781.0191; www.deeproot.com.
2. Strata Cell by City Green
3. Structural Support Modules by GreenBlue Infrastructure Solutions

ANCHORING SPIKES

10" (250 mm) long X 19/64" (8 mm) diameter, spiral, galvanized timber spikes. Utilize 4 spikes in each frame on the first layer of to anchor the frames to the aggregate sub base.

INSPECTION RISER FOR DRAINAGE (as directed by the Engineer)

Rigid, PVC schedule 40 pipe, 4" diameter.

Cap: Cast Iron solid threaded cleanout designed to fit standard PVC schedule 40 pipe-fittings.

INSPECTION RISER FOR SOIL (as directed by the Engineer)

Rigid, PVC schedule 40 pipe, 6" diameter.

Cap: Cast Iron solid threaded cleanout designed to fit standard PVC schedule 40 pipe-fittings.

Products meeting this specification:

Zurn Z 1440, Cast Iron Adjustable Cleanout, Zurn, 1801 Pittsburgh Avenue, Erie, PA 16502, 877-ZURN-NOW. www.zurn.com.

GEOGRID

Geogrid shall be woven polyester fabric with PVC coating, Uni-axial or biaxial geogrid, inert to biological degradation, resistant to naturally occurring chemicals, alkalis, acids.

Tensile strength at ultimate: 1850 lbs/ft (27.0 kN/m) minimum by ASTM D6637 test method.

Creep reduced strength: 1000 lbs/ft (14.6 kN/m) minimum by ASTM D5262 test method.

Long term allowable design load: 950 lbs/ft (13.9 kN/m) minimum by GRI GG-4 test method.

Grid aperture size (MD): 0.8 inch (20 mm) minimum.

Grid aperture size (CD): 1.28 inch (32 mm) maximum.

Roll size: 6' (1.8m) width is preferred, up to 18' (5.4m).

Products meeting this specification:

Stratagrid SG 150, by Strata, Cumming, GA, www.geogrid.com

Miragrid 2XT as manufactured by Ten Cate Nicolon, Norcross, GA, www.tencate.com
(Distributed by Geosynthetic Systems in Ontario).

Fortrac 35 Geogrid as manufactured by Huesker, Charlotte, NC, www.hueskerinc.com.

SF 20 Biaxial Geogrid, as manufactured by Syntee, Lancaster, SC, www.syntee.com.

GEOTEXTILE

Geotextile shall be nonwoven polypropylene fibers, inert to biological degradation and resistant of naturally occurring chemicals, alkalis and acids.

1. Grab tensile strength: 200 lbs (900 N) minimum (*ASTM D 4632 test method*)
2. Elongation: 50% minimum (*ASTM D 4632 test method*)
3. Trapezoid tear strength: 80 lbs (350 N) minimum (*ASTM D 4533 test method*)
4. Mullen burst strength: 350 psi (2400 kPa) minimum (*ASTM D 3786 test method*)
5. Puncture strength: 110 lbs (490 N) minimum (*ASTM D 4833 test method*)
6. CBR puncture strength: 500 lbs (2225 N) minimum (*ASTM D 6241 test method*)
7. Apparent opening size: 80 sieve (0.18mm) maximum (*ASTM D 4751 test method*)
8. Flow rate: 90 gal/min/ft² (3870 l/min/m²) minimum (*ASTM D 4491 test method*)
9. UV Resistance (at 500 hours): 70% strength retained

Products meeting this specification:

ADS Geosynthetics 0801T as manufactured by ADS Geosynthetics, www.ads-pipe.com.

Mirafi 180 N as manufactured by Ten Cate Nicolon, Norcross, GA, www.tencate.com. In Canada, distributed by Geosynthetic Systems and Armtec (as Armtec 250).

Geotex 801 as manufactured by Propex Geosynthetics, Chattanooga, TN, www.geotextile.com. In Canada, distributed by Nilex (as Nilex 4553).

ROOT BARRIER

Root Barrier shall be DeepRoot; Tree Root Barriers; UB 18-2, manufactured by DeepRoot Partners, L.P. (Deep Root); 530 Washington Street, San Francisco, CA 94111; 415.781.9700; 800.458.7668; fax 415.781.0191; www.deeproot.com.

Material: Black, injection molded panels, 0.080”(2.03mm) wall thickness in modules 24” (61cm) long by 18” (46cm) deep; manufactured with a minimum 50% post-consumer recycled polypropylene plastic with UV inhibitors; recyclable. Integrated zipper joining system providing for instant assembly by sliding one panel into another.

SUBMITTALS

At least forty-five (45) days prior to start of installation of items in this section, the Contractor shall provide submittals required in this section to the Engineer for review and approval.

Product Data: For each type of product, submit manufacturer’s product literature with technical data sufficient to demonstrate that the product meets these specifications.

For bulk materials, including soils and aggregates, Include analysis of the materials by a recognized laboratory made that demonstrates that the material meets the specification requirements.

System Mock Up:

Prior to the installation, construct a mock up of the complete installation at the site. The installation of the mock up shall be in the presence of the Engineer.

The mock up shall be a minimum of 100 square feet in area and include the complete Tree Well system installation with sub base compaction, drainage installation, base course aggregate and geotextile as required, geogrids, backfill, planting soil with compaction, decks, top geotextile and all necessary accessories.

The mock up area may remain as part of the installed work at the end of the project provided that it remains in good condition and meets all the conditions of the specifications.

PROJECT CONDITIONS

Verification of Existing Conditions and Protection of New or Existing Improvements: Before proceeding with work in this section, the Installer shall carefully check and verify all dimensions, quantities, and grade elevations, and inform the Engineer immediately of any discrepancies.

Carefully examine the civil, record, and survey drawings to become familiar with the existing underground conditions before digging. Verify the location of all aboveground and underground utility lines, infrastructure, other improvements, and existing trees, shrubs, and plants to remain including their root system, and take proper precautions as necessary to avoid damage to such improvements and plants.

In the event of conflict between existing and new improvements notify the Engineer in writing and obtain written confirmation of any changes to the work prior to proceeding.

When new or previously existing utility lines are encountered during the course of excavation, notify the Engineer in writing and make recommendations as to remedial action. Proceed with work in that area only upon approval of appropriate remedial action. Coordinate all work with the appropriate utility contractors, utility company or responsible public works agency.

Weather Limitations: Do not proceed with work when subgrades, soils and planting soils are in a wet, muddy or frozen condition.

Protect partially completed installation against damage from other construction traffic with highly visible construction tape, fencing, or other means until construction is complete. Prevent all non-installation related construction traffic over the completed installation; allowing only loads less than the design loads.

PROTECTION

Protect open excavations and partially completed installation from access and damage when work is in progress, and following completion with highly visible construction tape, fencing, or other means until all construction is complete.

WARRANTY

Manufacturer's product warranty shall apply. Submit manufacturer's product warranty.

Construction Requirements

LAYOUT APPROVAL

Prior to the start of work, layout and stake the limits of excavation and horizontal and vertical control points sufficient to install the required drainage features in the correct locations.

EXCAVATION

Excavate to the depths and shapes indicated on the drawings. Base of excavation shall be smooth soil, level and free of lumps or debris.

Do not over-excavate existing soil beside or under the limits of excavation required for the installation. If soil is over-excavated, install compactable fill material in lifts not more than 8 inches (200 mm) deep and compact to the required density.

Confirm that the depth of the excavation is accurate to accommodate the depths and thickness of materials required throughout the extent of the excavation.

Confirm that the width and length of the excavation is a minimum of 6 inches (150 mm), in all directions, beyond the edges of the Tree Wells.

SUBGRADE COMPACTION

Check compaction of the subgrade below the excavation and confirm that the subgrade soil is compacted to a minimum of 95% of maximum dry density at optimum moisture content in accordance with ASTM D 698 Standard Proctor Method.

Proof compact the subgrade with a minimum of three passes of a suitable vibrating compacting machine or apply other compaction forces as needed to achieve the required subgrade compaction rate.

Apply additional compaction forces at optimum water levels.

INSTALLATION OF GEOTEXTILE OVER SUBGRADE

Install geotextile over compacted subgrade.

Install the geotextile with a minimum joint overlap of 18 inches (450 mm) between sections of material. Ensure geotextile is laid flat with no folds or creases.

INSTALLATION OF INSPECTION RISERS FOR DRAINAGE (as directed by the Engineer)

Cut PVC pipe to fit vertically from deck to finish surface.

Manually perforate riser. Pipe should be rigid at level of pavement section, and perforated through level of Tree Well system.

Wrap pipe in geotextile and secure with zip ties. Brace riser for the remainder of installation to secure its location and elevation.

Install caps on top of each riser flush with grade.

INSTALLATION OF AGGREGATE SUB BASE BELOW FRAME

Install aggregate sub base to the depths indicated on the drawings, under the first layer of frames. Sub base aggregate shall extend a minimum of 6 inches (150mm) beyond the edge of the cell frames.

Compact aggregate sub base layer to a minimum of 95% of maximum dry density at optimum moisture content in accordance with ASTM D 698 Standard Proctor Method. Compact the subgrade with a minimum of three passes of a suitable vibrating compacting machine or apply other compaction forces as needed to achieve the required subgrade compaction rate.

The maximum slope on the surface of the sub base shall be 5%. Where proposed grades on finished paving are greater than 5%, the cells shall be stepped to maintain proper relationships to the finished grade.

The grade and elevations of the base under the Tree Well shall be approved by the Engineer prior to proceeding with the installation of the Tree Well.

INSTALLATION OF FRAME, PLANTING SOIL, GEOGRID, AND BACKFILL

Identify the outline layout of the structure and the edges of paving around tree planting areas on the floor of the excavation, using spray paint or chalk line.

Lay out the first layer of frames on the sub base. Verify that the layout is consistent with the required locations and dimensions of paving edges to be constructed over the Tree Wells.

Check each frame unit for damage prior to placing in the excavation. Any cracked or chipped unit shall be rejected.

Place frames no less than 1 inch (25 mm) and no more than 3 inches (75 mm) apart at base. In the event that spacing between cells exceeds 3 inches (75 mm), inform Engineer to determine appropriate layout revisions.

Install frames around, over, or under existing or proposed utility lines as indicated on plans.

Where any two adjacent frames must be installed at different elevations, the upper frame shall be supported by aggregate sub base with a maximum slope of 1:1. This may require installation of aggregate sub base within the adjacent lower cell frame. No two frames shall differ in elevation by more than 15 inches (375 mm).

Assure that each frame sits solidly on the surface of the sub base. Frames shall not rock or bend over any stone or other obstruction protruding above the surface of the sub base material. Frames shall not bend into dips in the sub base material. The maximum tolerance for deviations in the plane of the sub base material under the bottom of the horizontal beams of each frame shall be 1/4 inch (6 mm) in 4 feet (1200 mm).

Adjust sub base material including larger pieces of aggregate under each frame to provide a solid base of support.

Anchor each into sub base with four-10 inch (250 mm) spikes, driven through the molded holes in the cell frame base. The purpose of the anchoring system is to maintain cell spacing and layout during the installation of planting soil and backfill.

For applications where cells are installed over waterproofed structures, develop a spacing system consistent with requirements of the waterproofing system. Do not use anchoring nails that will come within 6" or less of any waterproofing material.

Install the second layer of frames on top of the first layer. Comply with manufacturer's requirements to correctly register and connect the cell frames together.

Register each frame on top of the lower frame post. Rotate each frame registration arrow in the opposite direction from the frame below to assure that connector tabs firmly connect. Each frame shall be solidly seated on the one below.

Build layers as stacks of frames set one directly over the other. Do not set any frame half on one cell frame below and half on an adjacent frame.

Install strongbacks on top of the frames prior to installing planting soil and backfill. Strongbacks are required only during the installation and compaction of the planting soil and backfill. Strongbacks should be moved as the work progresses across the installation. Strongbacks shall be removed prior to the installation of decks.

Install planting soil, geogrid and backfill as indicated on the drawings. The process of installation requires that these three materials be installed and compacted together in several alternating operations to achieve correct compaction relationships within the system.

Where required, place the geogrid curtain along the outside of the limit of the frames. Geogrid curtains are required between the edge of the Tree Well and any soils to be compacted to support paving beyond the area of Tree Wells. Do not place geogrid curtains between the edge of the cells and any planting area adjacent to the cells.

Pre-cut the geogrid to allow for 6 inches (150 mm) minimum under lapping below backfill, and 12 inches (300 mm) minimum overlapping top of Tree Well stack.

Where layout causes a change direction in the plane of the geogrid, slice the top and bottom flaps of the material so that it lies flat on the top of the cell deck and aggregate base course along both planes.

Provide a minimum of 300 mm (12 inch) overlaps between different sheets of geogrid. Place the geogrid in the space between the frames and the sides of the excavation. Attach the geogrid to the frames using 3/16 inch x 14-inch (5x350 mm) zip ties. Attach with zip ties at every cell and at cell deck.

Install no more than two layers of frames before beginning to install planting soil and backfill. Compact the planting soil within the frames and the backfill material outside the frames in alternating lifts until the desired elevations and density is achieved in both planting soil and backfill.

Install and compact backfill material in the space between the Tree Well and the sides of the excavation in lifts that do not exceed 8 inches (200 mm).

Compact backfill to 95% of maximum dry density using a powered mechanical compactor. Use a pneumatic compacting tool or narrow foot jumping jack compactor for spaces less than 12 inches (300 mm) wide and a 12-inch wide jumping jack compactor or larger equipment in wider spaces.

Maintain the geogrid curtain between the frames and the backfill material.

Install backfill in alternating lifts with the planting soil inside the Tree Wells. Fill the first layer or layers of frames with topsoil, specified in Topsoil Furnish and Place, Variable Depth.

Bring planting soil to the site using equipment and methods that do not overly mix and further damage soil peds within the soil mix. Soil mixes shall not be blown or pumped into the cells using soil blowing equipment.

Install in lifts that do not exceed 16 inches (400 mm). Lightly compact the soil inside the frames at each lift to remove air pockets and settle the soil within the frames.

Do not compact greater than 80% of maximum dry density. Check the soil compaction with a penetrometer or densiometer to achieve similar compaction levels provided in the mock up.

If the planting soil becomes overly compacted, remove the soil and reinstall. Use hand tools or other equipment that does not damage the frames.

Do not walk directly on horizontal beams of the frames.

Work soil under the horizontal frame beams of the second level of cell frames and between columns eliminating air pockets and voids. Fill each frame such that there is a minimum of 10 inches (250 mm) of soil over the top of horizontal frame beams before beginning compaction.

The top 1-2 inches (25-50 mm) of each frame post should remain exposed above the soil to allow the placement of the next frame or deck.

After the first two layers of frames have been installed, filled with planting soil and backfilled, proceed to install the third layer, if required, of frames. Comply with manufacturer's requirements to correctly register and connect the Cell frames together.

Remove the strongbacks. Sweep any soil from tops before adding the next layer of frames.

Register each frame on top of the lower frame post. Rotate each frame registration arrow in the opposite direction from the frame below to assure that connector tabs firmly connect. Each frame shall be solidly seated on the one below.

Build layers as stacks of frames set one directly over the other. Do not set any frame half on one Cell frame below and half on an adjacent frame.

Install strongbacks on top of third layer of Tree Wells.

Continue to install and compact the planting soil within the frames and the backfill material outside the frames in alternating lifts until the desired elevations and density is achieved in both soils.

The topsoil shall be brought to level not more than 1-inch (25mm) below the bottom of the deck when installed.

Obtain final approval by the Engineer of soil installation prior to installation of the deck.

Remove strongbacks after topsoil and backfill have been compacted to the top of the entire set of Tree Wells.

Leave 1-inch (25 mm) of air space, or install 3 inches (75 mm) of compost, below Deck as indicated on the drawings.

DECK INSTALLATION

Install the decks over the top of each frame stack. Clean dirt from the tops of the frame columns. Register the deck and make connections as recommended by the manufacturer to secure the deck to the top of the frame. Secure each deck at the four corners with screw fasteners as recommended by the manufacturer. Assure that each deck is seated firmly on the frame top with all connectors attached.

Install and compact remaining backfill material such that the soil outside the limits of the Tree Well is flush with the top of the installed deck.

INSTALLATION OF GEOGRID, INSPECTION RISER FOR SOIL (as directed by the Engineer), AND SIDEWALK, SPECIAL OVER THE DECK

Overlap geogrid from the sides of the frames over the top of the decks, with a minimum of 12 inches (300 mm) overlap.

Install inspection risers for soil as directed by the Engineer. Cut PVC pipe to fit vertically from deck to finish surface. Align riser with slots in deck. Wrap pipe in geotextile and secure with zip ties. Cut geotextile to overlap deck minimum 12". Cut geotextile inside the pipe to allow access. Do not cut or otherwise damage deck. Install caps on top of each riser flush with final paving surface.

Concrete base "Sidewalk, Special" shall be a minimum of 3 inches (75 mm) thick under unit pavers. Load the concrete from equipment that is outside the limits of the excavated area. Work over material already in place. For large or confined areas, where concrete cannot easily be placed from the edges of the excavated area, obtain approval for the installation procedure and types of equipment to be used in the installation from the manufacturer.

Measurement and Payment

This work will be measured for payment per each unit installed complete in place and will be paid for at the contract unit price each for TREE WELL, which price shall include all labor, equipment, and material necessary to complete the work as specified, including all geotextile, geogrids, aggregates, 10" spikes, inspection risers, subbase material, backfill, drainage system, root barrier, and the installation of topsoil, topsoil material will be paid for separately.

XX006739 CONCRETE PAVERS, TYPE A
XX006740 CONCRETE PAVERS, TYPE B

Description

This work shall consist of furnishing and installing concrete unit pavers in accordance with the applicable portions of Recurring Special Provision LRS 14, the details in the plans, and the following requirements.

Qualifications

Contractor and crew must have at least five years experience in installing unit pavers on projects of similar size. The Contractor shall submit descriptions and references for five successful paver installation projects completed within the past five years. The submittals shall include project names, client names, and locations. The City of Champaign has the right to interview field crew members assigned to the project to ensure adequate skills for the proposed work and may request unqualified workers be replaced with skilled workers.

Materials

Samples:

Contractor must submit to the Engineer a minimum of 25 square feet of unit pavers for approval. Submittal shall indicate the full range of unit pavers in the specified color.

Pavers:

Unit pavers basis of design shall be as manufactured by Unilock Chicago, Inc., 301 East Sullivan Road, Aurora, Illinois 60505, (630) 892-9191; or an approved equal. Local Unilock representative is Illinois Brick Company, 3200 W. Springfield Avenue, Champaign, Illinois 61822, (217) 398-4300.

Unit pavers shall be:

1. Type A: Il Campo, Finish: Brushed, Edge: Chamfer, Sizes: 12" x 12" x 2.75", 6" x 12" x 2.75" nominal. Contractor can use 6" x 6" x 2.75" size paver at edges to minimize field cuts. Pattern: M, as shown on plans, Color: Heritage Brown or approved equal.
2. Type B: Unigranite, Finish: Natural split face, Edge: Natural, Size: 6" x 6" x 2.75" nominal, Pattern: Running Bond, as shown on plans, Color: Dark Charcoal or approved equal.

Unit Pavers shall conform to severe freeze-thaw test requirements set forth in ASTM C 1645 on sampling and testing interlocking concrete paving units.

Pigment in unit pavers shall conform to ASTM C 979. ACI Report No. 212.3R provides guidance on the use of pigments.

Paver Setting Bed Material:

The sand shall be dry sand conforming to ASTM C 33 with all particles passing the No. 8 sieve, and less than 1% passing the No. 200 sieve.

Paver Joint Material:

The sand shall be dry sand conforming to ASTM C 144 with all particles passing the No. 16 sieve. Color: Tan.

Geotextile Fabric:

The geotextile fabric shall be installed at locations shown on the plans and must comply with the requirements of Section 1080.02 of the Standard Specifications. The fabric shall be nonwoven.

Portland Cement Concrete Underlayment:

The Portland cement concrete underlayment shall be in accordance with the specification for "Sidewalk, Special", the applicable portions of Section 424 of the Standard Specifications, and the details in the plans.

Source Limitations:

Obtain each type of concrete unit paver, joint material, and setting bed material from one source with resources to provide materials and products of consistent quality in appearance and physical properties.

Mock Up:

Prior to the installation, construct a mock up at the site to verify selections made under sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution. The mock up shall be a minimum of 10 feet long and shall be the full width of the proposed unit paver field. The installation of the mock up shall be in the presence of the Engineer unless otherwise directed by the Engineer.

If approved by the Engineer, the mock up area may remain as part of the installed work at the end of the project provided that it remains undisturbed, remains in good condition, and meets all of the conditions of the specifications.

Construction Requirements

General:

- A. Pre-Installation Meeting: Conduct a pre-installation meeting to verify all products, application procedures, site conditions, and warranty terms.
- B. All pavers shall be installed per the respective manufacturer's recommendations.
- C. No paver setting work shall be performed when the underlayment has free moisture, ice, or snow, or when the underlayment is frozen.
- D. Concrete underlayment shall be sound, clean, and free from debris and materials or substances which will hinder the setting bed. The top surface of concrete underlayment slab shall not vary more than one quarter ($\frac{1}{4}$) inch from its proposed elevation.
- E. Filter fabric shall be laid loosely, free of folds and creases. Fabric shall fully cover the area of concrete unit paver installation. Fabric of insufficient width or length shall lapped or sewn as directed by the Engineer.
- F. Sand setting bed shall not be installed when the ambient temperature is below 40°F, at 40°F and falling, or at any time when the setting bed stiffens before paver units are installed.

Paver Cutting:

- A. To reduce dust during paver installation, unit pavers shall only be cut using wet saws. No dry cutting permitted.
- B. Cut pavers shall be placed in areas shown on the details in the plans. "L" shaped pavers shall be avoided where possible.
- C. Pavers shall be cut radially when joints between pavers on curves exceed 1/8 inch.
- D. Radial cut pavers shall be created by trimming both sides of paver.

Paver Installation:

- A. Place pavers by hand in straight courses with hand tight joints and uniform top surface. Good alignment shall be kept and patterns shall be as shown on plans and details.
- B. Protect the alignment and elevations of the newly laid pavers with plywood sheeting at all times. Advance the plywood as work progresses and maintain plywood protection over all areas subject to movement of materials, workers, and equipment.
- C. Pavers shall be cut only when necessary and used in courses as indicated on plans and details.
- D. Joints in the underlayment, if any, shall not reflect up through the setting bed and paver system.
- E. When all pavers are installed, apply joint sand to paving and sweep into all joints until joints are completely filled. Sweep clean the entire surface and remove all excess sand. Do not allow traffic on pavers prior to joints being filled.
- F. Protect newly laid pavers, slabs and curbs with plywood panels on which workers stand. Advance protective panels as work progresses but maintain protection in areas subject to continued movement of materials and equipment to avoid creating depressions or disrupting alignment of installed pavers, slabs or curbs.
- G. Repeat the joint-filling process 30 days later or as directed by the Engineer.
- H. Replace cracked or chipped unit pavers at no additional cost to the City.

Measurement and Payment

This work will be measured for payment in place and the area computed in square feet. This work will be paid for at contract unit price per square foot for CONCRETE PAVERS, TYPE A or CONCRETE PAVERS, TYPE B which prices shall include all labor, equipment, and material necessary to complete the work as specified, including joint and setting bed sand and geotextile fabric. Sidewalk, Special and Aggregate Base Course, Type B 4" will be paid for separately.

XX006901 TREE GRATE ASSEMBLY, COMPLETE

Description

This work shall consist of furnishing and installing the cast iron tree grates, grate frame, and concrete collar as shown on the plans or as directed by the Engineer, and as specified herein. The work shall conform to the requirements of the applicable portions of the Standard Specifications.

Materials

The material must be gray iron castings conforming to A.S.T.M. A48 or A-48-75, Class 35 or 5B, and Article 1006.14 of the Standard Specifications. Concrete must be Class SI and conform to the requirements of Section 1020 of the Standard Specifications.

Grate pattern must comply with ADA Guidelines for equal access. Tree grates shall be 1.5" thick with accompanying frame. Grate shall consist of two halves with 24" minimum diameter opening for trees. Grate openings must meet or exceed ADA Standards. Grate dimensions shall be as specified in plans or by the Engineer. Grate halves must be able to be bolted together with tamperproof bolts, and the grate must also be bolted to the frame with tamperproof bolts.

Frame must be 1 3/4" x 1 3/4" x 1/4" steel frame, or must coordinate with grate dimensions, surrounding the entire perimeter of the tree pit. Frame must be manufactured with anchor tabs for concrete installation.

Finish:

Surface Preparation

The top surface must be cleaned in accordance with Section 506 of the Standard Specifications for Method 2 (power or hand tool cleaning) and must be free of all loose rust and loose mill scale.

Coating

Before installation, in an effort to reduce the appearance of oxidation, all surfaces (top, bottom and edges) of the grates are to be coated and rubbed with two applications of a Type 1 Membrane Curing Compound meeting the requirements of Article 1022.01 of the Standard Specifications, or alternative compound as approved by the Engineer.

Surface preparation and coating will not be paid for separately but shall be included in the cost of the Tree Grate Assembly, Complete.

Submittals:

Shop drawings of all items related to the manufacture and installation of the tree grate and frame must be submitted and approved by the Engineer before fabrication.

Manufacturers:

Tree grates can be supplied by the following suggested manufacturers:

- Neenah Foundry, Neenah, WI
- Urban Accessories, Woodinville, WA
- Ironsmith, Palm Desert, CA
- Fairweather/Olympic Foundry, Seattle, WA

Tree grates must match in similarity the following Neenah tree grate styles: R-8817 (4' x 9' rectangle).

Construction Requirements

Fasteners:

Tree grate halves must be joined together with tamper resistant bolts and fastened to grate frame with tamper resistant bolt assembly packages as provided by the manufacturer.

Surface Conditions:

Examine frame, concrete ledge, or ground surface to receive grate. The seat for the grates must be cleaned prior to setting the grates. Correct conditions to comply with manufacturer's recommended installation procedures.

Opening to Receive Grates:

Concrete collar must be constructed in accordance with the details in the plans and the applicable portions of Section 606 of the Standard Specifications. Wood forms must be placed inside frame to prevent concrete seepage into pit area, and expansion joints place on the outside of the frame. Concrete collar shall then be poured around frame, and allowed to set until firm. The installation of concrete collar will not be paid for separately but shall be incidental to the cost of this item.

Join Grate Halves:

Bring tree grate halves together around tree at a level to allow easy access to underside. Join sections at preformed holes using temper-resistant bolt packages provided by manufacturer as suggested. Lower grate into place and bolt to frame with tamper-proof resistant bolts. If grate manufacturer cannot accomplish this, then the grates and frame must be tapped, field drilled, and bolted on site. The cost for this work and equipment shall be incidental to the cost of this item.

Material under Grate:

Mulch must be Shredded Hardwood Bark Mulch, 3" in depth, free of foreign materials.

The Contractor must remove all litter and plant debris before mulching. The Contractor must repair grade by raking and adding topsoil as needed, before mulching. Care must be taken not to bury leaves, stems, or vines under mulch material.

All finished mulch areas must be left smooth and level to maintain a uniform surface and appearance. All tree grate areas or work areas must be clean of debris and mulch, prior to leaving the site.

Measurement and Payment

This work will be measured for payment per each tree pit constructed, complete in place and will be paid for at the contract unit price each for TREE GRATE ASSEMBLY, COMPLETE, which price shall include all labor, equipment, and material necessary to complete the work as specified, including all necessary excavation, furnishing and placing the forms, reinforcement, concrete collar, and any other work needed to complete the construction of the tree grate supports.

XX007151 PLANTER RAILING

Description

This work includes furnishing and installing planter railing and preparation, cleaning, and painting of all metal work, complete as shown on drawings and as specified herein.

General

Shop Drawings: Show locations of fencing and posts, details of post installation and expansion joints, and attachment details.

Welding and cutting must be in accordance with the Standard Code for Arc and Gas Welding of the American Welding Society. Welding must be done in a manner that will prevent permanent buckling in the finished work. Certified welders using E 70xx electrodes must do the welding. All welds and spatter must be ground smooth prior to coating with galvanizing primer and finished with epoxy enamel.

Project Conditions

Field Measurements: Verify layout information for fencing shown on the Drawings in relation to the property survey and structures. Verify dimensions by field measurements.

Materials

Adhere to specifications defined within the University District Streetscape Standards.

Submittals:

The following items must be submitted to the Engineer for approval before production can begin:

1. Complete, signed, and sealed manufacturer's shop drawings.
2. Specifications and color sample for all coatings, epoxy sealers and grouts.
3. Individual piece samples and full mock-up of fence segment. Samples must include the post, fence segment, post cap, and tamper-proof bolts.

Steel Fencing:

Use only materials that are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names and roughness. Steel must meet the requirements of ASTM Specification A-36.

All 1" posts and rails, and ½" pickets shall be solid square tube steel with 1/8" thick walls. All perforated metal panels shall be 1/8" thick.

Form fencing of welded construction to forms and profiles indicated; provide for field.

Form exposed work true to line and level with accurate angles and surfaces and straight edges. Weld corners and seams continuously, complying with AWS recommendations. Grind exposed welds smooth and flush to match and blend with adjoining surfaces.

Provide for anchorage of panels to posts as shown on drawings.

Expansion Joints: Provide expansion joints at intervals not to exceed 40 feet.

Fabricate joints in a manner to exclude water or provide weep holes where water may accumulate.

Miscellaneous Items:

This specification is intended to include complete fence materials, and the Contractor must furnish all necessary bolts, nuts, latches, fittings, and connections necessary to securely and rigidly install the fence. Color must be black. All materials to be the same color; black.

Finish:

Surface Preparation

1. All surfaces of the fence system must be sandblasted to prepare for the electrodeposition coating and powder coating process. Blasting must take place no more than 8 hours prior to the coating process. All parts must then be cleaned in a heated two-stage process including spray washing and cleaning all areas utilizing a total immersion cleaning process. Both stages must use a heated alkaline cleaner to remove all grease, dirt or other contaminants.
2. Rinsing must be performed by totally immersing parts in a continuously overflowing rinse tank and then totally immersed in a continuously overflowing conditioner to prepare surface for phosphating.

Coating

1. Phosphating must be performed by totally immersing parts in a heated phosphate solution to provide the transition coating between the metal and the electrodeposition coating.
2. All parts must then be rinsed by total immersion in a continuously overflowing rinse tank to remove any excess phosphate solution.

3. Powder coating preparation for electrodeposition coating must require all parts to be totally immersed in a continuously overflowing tank containing PPG Powercron 590, or equivalent, heavy metal free cationic Electrodeposition coating. All parts must then be rinsed by total immersion in a continuously overflowing tank to remove any excess E-coat solution.
4. All parts must be cured by heating to the exact time and temperature requirements of the electrodeposition coating by precisely controlled gas ovens.
5. Powder coating must be applied by electrostatically depositing a uniform coating on all parts to a thickness of 8 mils minimum in two applications utilizing the Electrodeposition coating preparation and 2.5-3 Mils utilizing the hot dip galvanizing preparation.

Powder Coat specifications:

- | | |
|------------------------------|--|
| a. Color: | black |
| b. Resin Type: | Polyester Urethane |
| c. 60 Degree Gloss: | 92+ |
| d. Specific Gravity: | 1.36+/-0.05 g/cm ³ |
| e. Cure schedule: | 20 min. at 380° F peak metal temperature |
| f. Impact Resistance | 60 in. lbs/60 in lbs. |
| g. Pencil Hardness: | 2H |
| h. 1/8 conical mandrel bend: | pass |
| i. Storage Stability: | min. 6 months at or below 30°F |

6. All parts must be cured by heating to the exact time and temperature requirements of the powder in a precisely controlled oven.
7. An acceptable alternate to the above phosphating process is hot dip galvanizing all parts to ASTM 123 followed by an etch priming to prepare for powder coating.

Construction Requirements

Setting Posts:

1. Center and align posts in fence post sleeves (minimum 6” deep), 24” – 36” on center, of planter curb at correct height.
2. Place epoxy grout around posts flush with top of concrete to avoid ponding. Check each post for vertical and top alignment, and hold in position during placement and finishing operations. Protect portion of posts above ground from concrete splatter.

Epoxy Grout:

The epoxy grout must be a two component, epoxy-resin bonding system conforming to the requirements of ASTM C 881, Type IV, Grade 2, Class B or C. The Class supplied must be governed by the range of temperatures for which the material is to be used. The resin must contain a white pigment and the hardener must contain a black pigment in such proportions that the resulting mixture is concrete gray.

The two component, epoxy-resin grout must be furnished by the manufacturer in premeasured, preassembled cartridges suitably designed for mixing and application of the grout or in containers individually marked to clearly identify each component.

The epoxy adhesive must be packaged in a kit with each component in a separate container. The containers of each kit must be filled with the adhesive components in exact mixing proportions and one container must be large enough to mix both of the components. The size of the kit must be the total volume of the mixed adhesive which must be 4 L (1 gal) or 20 L (5 gal) as specified. Regardless of how it is furnished, the manufacturer must supply mixing instructions.

Prior to approval and use of the epoxy-resin grout, the Contractor must submit a notarized certification by the formulator, stating that the epoxy-resin grout meets these requirements.

Installation:

Install fencing plumb, level, true to line and location, and secure.

Cleaning:

Clean connections and abraded areas and apply two (2) coats of repair paint compatible with finish preparation utilized. Apply primer and finish paint according to manufacturer's directions. Match original color.

Disposal:

All excess excavated and unsuitable material is to be legally disposed of off site.

Measurement and Payment

This work will be measured for payment in place in feet and paid for at the contract price per foot for PLANTER RAILING, which price shall include all labor, equipment, and material necessary to complete the work as specified.

XX007418 FLATTOP SEATING BOULDER TYPE A

Description

This work includes the installation of mortar set Flattop Seating Boulders in accordance with the layout and details shown in the plans. The stone shall be placed on a compacted granular base and an 8" thick reinforced concrete slab.

Materials

Flattop Seating Boulder:

Manufacturer – Halquist Stone. Contact: N51 W23563 Lisbon Road, Sussex, WI 53089, phone: (262) 246-9000; locally distributed by: Illinois Brick, phone: 262-749-8369.

Stone – Fon Du Lac Outcropping Benches, Finish: Natural, Size Range: 18" - 3' W x 3' - 5' L x 18" - 24" thick. See plans for location, quantity, and setting bed detail. Provide stone free of defects which would impair strength, durability, or appearance. Provide stone of uniform coloration, within the range specified or approved. Obtain each type of stone from one quarry.

Mortar:

Mortar shall be pre-blended, dry mortar mix. Furnish dry mortar ingredients in the form of a pre-blended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to project site. Comply with ASTM C 270, Proportion Specification. Color to match Flattop Seating Boulder color range.

Concrete Slab:

The 8" thick reinforced concrete slab shall conform to the applicable portions of Section 353 of the Standard Specifications.

Granular Base:

The compacted granular base shall conform to the applicable portions of Section 351 of the Standard Specifications

Samples:

Submit two or more pieces 12 inches or larger, showing complete range of color and natural variations to be provided.

Qualification Data for Installer:

Installer shall have minimum five years of experience installing natural stone and mortar on projects of similar nature and cost. References shall be submitted for approval by Engineer.

Construction Requirements

General:

Verify that substrate is level or to correct gradient, smooth, capable of supporting stones and imposed loads, and ready to receive work of this Section.

Verify gradients and elevations of substrate are correct.

The base shall be dry, uniform, even, and ready to support stone, and imposed loads.

Preparation:

The site must be stripped of all topsoil and other objectionable materials to the grades specified.

All sub-drainage of underground services within the pavement area must be completed in conjunction with subgrade preparation and before the commencement of subbase construction.

After trimming to the grades specified, the subgrade is to be proof rolled to 95 percent Standard Proctor Maximum Dry Density in the presence of the Engineer, with soft spots or localized pockets of objectionable material excavated and properly replaced with approved granular material.

The subgrade shall be trimmed to within 0 to ½ in. (0 to 10 mm) of the specified grades. The surface of the prepared subgrade shall not deviate by more than ½ in. (10 mm) from the bottom edge of a yard stick straight edge laid in any direction.

The Contractor shall ensure that the prepared subgrade is protected from damage from inundation by surface water. No traffic shall be allowed to cross the prepared subgrade. Repair of any damage to the subgrade shall be the responsibility of the Contractor at no cost to the City.

Under no circumstances shall further pavement construction proceed until the subgrade has been inspected by the Engineer.

Stone Installation:

Joints between the stones on average shall be 1/2" wide.

Gaps at the edges of the paved area shall be filled with cut stones or edge units.

Stones to be placed along the edge shall be cut with a masonry saw.

The stone surface shall be swept clean of all debris before compacting in order to avoid damage from point loads.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for FLATTOP SEATING BOULDER TYPE A, which price shall include all labor, equipment, and material necessary to complete the work as specified, including the 8" thick reinforced concrete slab, compacted granular base, mortar setting bed, and mortar joints.

XX007920 LANDSCAPING STONE

Description

This work includes furnishing and installing Landscape Stone and subbase for the Third Street bioswale as shown on the plans and specified herein.

Materials

Landscape Stone:

Manufacturer – Halquist Stone, Contact: N51 W23563 Lisbon Road Sussex, WI 53089, phone: (262) 246-9000; locally distributed by: Illinois Brick, phone: 262-749-8369.

Stone – Fon Du Lac Flagstone, Finish: Natural, Size Range: 18" - 3' W x 3' - 5' L x 3" - 8" thick. See plans for location, quantity, and setting bed detail. Provide flagstone, varying in size as noted within drawings; varying in color ranging between off-white, beige, to browns. Light gray colorings are also acceptable.

Mortar:

Provide prepackaged, dry-mortar mix containing dry, redispersible, vinyl acetate or acrylic additive to which only water must be added at project site.

Compacted Aggregate:

The compacted aggregate below the landscape stone shall conform to the applicable portions of Section 351 of the Standard Specifications.

Submittals:

Product Data: Provide characteristics of stone, dimensions, and special shapes.

Samples: Submit two or more pieces 12 inches or larger, showing complete range of color and natural variations to be provided.

Qualification Data for Installer:

Installer shall have minimum five years experience installing natural stone paving on projects of similar nature and cost. References shall be submitted for approval by Engineer.

Construction Requirements

General:

Protect stonework from precipitation.

1. Cover stonework with waterproof membrane at end of work each day. Cover whenever work is not in progress. Cover at least 24 inches down each side; fasten in place.
2. At 40 degrees F and below: Cover stonework completely.

Prevent staining of stone from all sources; immediately remove materials which could cause stains, without damaging stone. Protect stone from mud spatter.

Remove snow and ice; do not install stonework until substrate surfaces are dry.

Remove frozen stonework and work damaged by freezing.

Stone shall not be installed during heavy rain or snowfall. Stone shall not be installed over frozen base materials.

Verify that substrate is level or to correct gradient, smooth, capable of supporting stones and imposed loads, and ready to receive work of this Section.

Verify gradients and elevations of substrate are correct.

Geotextiles shall be placed according to drawings.

Aggregate base materials, thickness, compaction, surface tolerances, and elevations shall conform to the details in the construction documents and the applicable portions of Section 351 of the Standard Specifications.

The base shall be dry, uniform, even, and ready to support bedding stone, stone, and imposed loads.

Beginning of bedding stone and stone installation shall signify acceptance of base.

Preparation:

The site must be stripped of all topsoil and other objectionable materials to the grades specified.

All sub-drainage of underground services within the pavement area must be completed in conjunction with subgrade preparation and before the commencement of subbase construction.

After trimming to the grades specified, the subgrade is to be proof rolled to 95 percent Standard Proctor Maximum Dry Density in the presence of the Engineer, with soft spots or localized pockets of objectionable material excavated and properly replaced with approved granular material.

The subgrade shall be trimmed to within 0 to ½ in. (0 to 10 mm) of the specified grades. The surface of the prepared subgrade shall not deviate by more than ½ in. (10 mm) from the bottom edge of a yard stick straight edge laid in any direction.

The Contractor shall ensure that the prepared subgrade is protected from damage from inundation by surface water. No traffic shall be allowed to cross the prepared subgrade. Repair of any damage to the subgrade shall be the responsibility of the Contractor at no cost to the City.

Dampen and roller compact stone to level and even surface.

Granular Subbase Installation:

The subbase shall be placed in uniform lifts not exceeding 3 in. (75 mm) loose thickness and compacted to at least 95 percent Standard Proctor Maximum Dry Density as per ASTM 698.

Before commencing the placing of the stones, the base shall be inspected by the Engineer.

Stone Installation:

Install aggregate as indicated on drawings.

Stones shall be free of foreign material before installation.

Stones shall be inspected for color distribution, and all chipped, damaged, or discolored stones shall be replaced.

Stones to be placed along the sidewalk shall be cut with a double blade splitter or masonry saw.

Measurement and Payment

This work will be measured for payment in tons installed in place and will be paid for at the contract unit price per ton for LANDSCAPING STONE, which price shall include all labor, equipment, and material necessary to complete the work as specified, including the compacted aggregate subbase and all necessary excavation, and any other work needed to complete the construction of the natural stone.

XX008160 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 all electronic control hardware and software, LED lighting fixtures, control boxes and terminations, cables, accessories, mounting structures and hardware, wiring, conduit, climate controlled enclosure with concrete foundation, and shop drawing submittals.

Lighting Fixture Components

1. Type F1

20° narrow flood RGB LED spot light with die-cast aluminum housing and adjustable mounting hardware with corrosion resistant black finish. Fixture shall produce in excess of 850 initial lumens using approximately 28 watts. Fixture shall be capable of DMX control and be individually addressable by the end user. Each fixture shall be initially addressed by the Contractor or vendor and installed in the proper location as noted.

Fixture shall be IP66 rated for exterior applications and shall meet 3G ANSI C136.31 vibration standard for bridge applications. Fixture shall be prepared for voltages from 100v to 277v and operate in temperatures between -13°F and 122°F.

Fixture shall include wire guard accessory. Wire guard accessory shall mount firmly to fixture without accessory holders or other attachments to minimize vibration potential.

2. Type F2

20° narrow flood RGB LED spot light with die-cast aluminum housing and short yoke adjustable mounting hardware with corrosion resistant black finish. Fixture shall produce in excess of 1750 initial lumens using approximately 50 watts. Fixture shall be capable of DMX control and be individually addressable by the end user. Each fixture shall be initially addressed by Contractor or vendor and installed in the proper location as noted.

Fixture shall be IP66 rated for exterior applications and shall meet 3G ANSI C136.31 vibration standard for bridge applications. Fixture shall be prepared for voltages from 100v to 277v and operate in temperatures between -13°F and 122°F.

Fixture shall include wire guard accessory and visor. Accessories shall mount firmly to fixture without accessory holders or other attachments to minimize vibration potential.

3. Control Box

LED fixture power and data box with die-cast aluminum body and corrosion resistant black finish. Control box shall combine power and DMX data for daisy-chained distribution to the lighting fixtures. Control box shall be enabled for DMX control and located on the bridge abutment near the beginning of each fixture run. Type and quantity of control boxes required may vary between manufacturers. Contractor to verify quantity and type of control box with manufacturer prior to ordering.

Fixture shall be IP66 rated for exterior applications and shall meet 3G ANSI C136.31 vibration standard for bridge applications. Fixture shall be prepared for voltages from 100v to 277v and operate in temperatures between -13°F and 122°F.

Control System Components

The lighting controller system shall consist of the following:

1. Enclosure and Foundation

Lighting controls shall be located in a separate enclosure provided by the Contractor. Enclosure shall be located adjacent to lighting controller #119 as shown in the roadway lighting plans.

Enclosure shall be an aluminum cabinet, single door, not to exceed 18" in width or 50" in height, with appropriate internal space and structure to accommodate all required lighting control equipment, including climate control. Enclosure shall meet or exceed the requirements of a NEMA 4X rating and shall be U.L. listed. Enclosure shall be painted black.

Enclosure shall include climate controls and devices as required to maintain non-condensing temperatures between 32°F and 122°F.

All inputs and outputs to enclosure shall enter and exit via bottom of enclosure through conduit in concrete foundation.

Provide concrete foundation, Type D with 6" thick concrete apron for the enclosure in accordance with the details shown in the roadway lighting plans, Standard 878001, and Section 878 of the Standard Specifications. Provide concrete sidewalk, 6" thick between the foundation for lighting controller #119 and the foundation for the enclosure in accordance with the details shown in the

roadway lighting plans and the technical specifications. The integral color of the concrete foundation, concrete apron, and concrete sidewalk between the foundations shall match the color of the adjacent proposed concrete sidewalk.

2. Contactors

Contractor shall provide two appropriate contactors as designed for control of power feeds to lighting fixture control boxes. Contactors shall be controlled by the lighting system via connection to RIO44 interface specified below.

3. DMX Wiring

DMX wiring shall be BELDEN #9729 or approved equivalent. Confirm with lighting control manufacturer prior to ordering.

4. Mosaic Show Controller System and Accessories

4.1 Unison Mosaic Show Controller 1 (MSC 1)

A. General

1. The Unison Mosaic Show Controller 1 (MSC1) shall be a microprocessor-based system specifically designed for control of lighting and other related systems in an architectural or entertainment application. A personal computer running emulation software shall not be acceptable.
2. The Controller shall be provided with a 5 year manufacturer warranty.

B. Mechanical

1. Enclosure and mounting shall comply with DIN43880 and EN60715 (35/7.5) respectively.
2. The Controller shall be an 8 unit DIN enclosure (143.5mm x 90.0mm x 58.0mm).
3. The Controller shall have a recessed switch for resetting the unit without removal of power.
4. There shall be visual indicators on the Controller showing status of the controller and its interfaces.
5. The Controller shall be entirely solid-state with no moving parts, fans or hard disc drives.
6. The Controller shall operate in a temperature range from 0°C to 50°C (32°F to 122°F).

C. Electrical

1. The Controller shall be designed to support the following wire terminations (Camden Electronics CTB9208 5.08mm plug-in rising clamp terminals):
 - a. Wire terminations as required by the manufacturer's specifications
2. The Controller shall support a multi-mode full-duplex RS232/half-duplex RS485 Serial Port.
 - a. RS232/RS485 serial input/output
 - b. 3-pin rising clamp terminal Camden connector
 - c. The Controller shall be capable of receiving DMX512 for triggering using the serial port.
3. The Controller shall support eight local inputs capable of digital, analog or contact closure operating mode.
 - a. 16-pin rising clamp terminal Camden connector
 - b. Isolated digital/analog inputs
 - c. 8 tri-mode inputs: active high, active low or contact closure
4. The Controller shall support a MIDI input and a MIDI output interface for use in triggers and for MIDI time code.
 - a. 5-pin DIN socket for MIDI In
 - b. 5-pin DIN socket for MIDI Out
 - c. 3-pin 9V to 48V DC Power
5. In addition there shall be the following standard connectors:
 - a. RJ45 socket for 10/100Base-TX Ethernet
 - b. USB-B Socket for USB 1.1
6. The Controller shall be able to receive Power over Ethernet as an alternative to direct DC power (IEEE 802.3af PoE powered device).
7. The Controller shall be ETL/cETL listed and CE compliant.

D. Functional

1. The Controller shall store show data in non-volatile solid-state memory. This memory shall be removable for purposes of backup or disaster-recovery.
2. Show data may be downloaded from a remote personal computer over an Ethernet or USB connection.

3. The Operating Software of the Controller shall be stored in a dedicated non-removable non-volatile solid-state memory. It shall be possible to update the Operating Software by download from a remote personal computer over an Ethernet or USB connection.
4. The Controller shall commence show playback automatically on receiving power without additional external inputs.
5. The Controller shall have an internal real-time clock that continues to operate when external power is absent. It shall be capable of adjusting for Daylight Saving Time automatically and can be updated over the Internet using the Network Time Protocol (NTP).
6. The Controller shall be able to calculate sunrise and sunset times based on longitude and latitude information, and use these as triggers for events.
7. The Controller shall have a capacity of 512 channels of DMX512 with RDM or network DMX protocols including streaming ACN (ANSI E 1.31), ETCNet2, Philips KiNet, Pathway XDMX and Art-Net II protocols with one protocol active per 512 channels, in lieu of DMX512 output.
8. The Controller shall operate a web server on its Ethernet interface. This shall allow status information, control and configuration options to be accessed remotely.
9. The appearance and content of the web interface may be customized by the user.
10. The Controller shall allow lighting to be programmed as separate zones, with independent triggering and manual intensity control.
11. The Controller shall support multiple timelines, crossfades and effects running concurrently.
12. The Controller shall support playback of video media with individual pixels mapped to lighting fixtures in an array.
13. The Controller shall support multiple remote modules connected via Ethernet for support of additional show control interfaces, such as contact closures, analog inputs, relay outputs, serial audio input, linear time code, MIDI and DALI.
14. The Controller shall support multiple remote button stations connected via Ethernet for use as triggers and user feedback.
15. The Controller shall support multiple streams of linear timecode and audio data within a single networked system.
16. The Controller shall have an internal security feature that will restart the unit in the event of program failure.

17. Multiple Controllers shall automatically synchronize and share triggers when programmed as part of a single show and linked via Ethernet during playback.
 18. The Controller shall support conditional logic and execute user-defined Lua scripts to support advanced show control operations.
 19. The Controller shall be supported by programming software running on either a PC or Mac platform. Programming features shall include:
 - a. Comprehensive architectural and automated fixture library
 - b. Drag and drop placement of fixtures on plan
 - c. Drag and drop patching of fixtures to output addresses
 - d. Import of any media for mapping to fixture arrays
 - e. Timeline-based programming and playback
 - f. Extensive range of editable effect presets
 - g. Drag and drop placement of effect presets and media on timeline
 - h. Variety of triggering options for firing system-wide events
 - i. Each trigger event may be configured to initiate one or more lighting or show control action
 - j. Each trigger event may be configured to test one or more conditions before executing its actions
 - k. Simulation of individual timelines, and entire project with triggers
 - l. Live output from software for programming verification purposes
 - m. Controller and network management tools
 - n. Export TSV reports for all aspects of programming
 - o. Tools for remote management of content and show programming
- E. Protection and Patents
1. The Mosaic Controller is protected under license by the following patents:
 - a. U.S. Patents: 6,016,038; 6,150,774; 6,166,496; 6,211,626; 6,292,901; 6,340,868; 6,459,919; 6,528,954; 6,548,967; 6,577,080; 6,608,453; 6,624,597; 6,636,003; 6,717,376; 6,720,745; 6,774,584; 6,777,891; 6,781,329; 6,788,011; 6,801,003; 6,806,659; 6,869,204; 6,883,929; 6,888,322; 6,897,624; 6,936,978; 6,965,205; 6,967,448; 6,969,954; 6,975,079; 7,014,336; 7,031,920; 7,038,398; 7,038,399; 7,042,172; 7,064,498; 7,113,541; 7,132,635; 7,132,785; 7,132,804; 7,135,824; 7,139,617; 7,288,190; 7,231,060

- b. Canadian Patent: CA 2,302,227
- c. Hong Kong Patent: HK 1025416
- d. Australian Patents: AU 757000; AU 2003203584
- e. European Patents: EP 1 016 062 B1; EP 1 224 845 B1; EP 1 234 140 B1; DE 698 07 092 C0; DE 600 21 911 C0; DE 600 23 730 C0

4.2 *Unison Mosaic DMX/RDM Splitter (MSC-OPTO)*

A. General

- 1. The DMX/RDM splitter shall be a solid-state device specifically designed as an optically isolated DMX512 repeater.
- 2. There shall be visual indicators on the splitter showing status of the DMX Opto-Splitter and its interfaces.
- 3. The DMX splitter shall be provided with a 5 year manufacturer warranty.

B. Mechanical

- 1. Enclosure and mounting shall comply with DIN43880 and EN60715 (35/7.5) respectively.
- 2. The unit shall be a 6 unit DIN enclosure (107.5mm x 90.0mm x 58.0mm).
- 3. The unit shall be entirely solid-state with no moving parts or fans.
- 4. There shall be visual indicators on the splitter showing status of the DMX Opto-Splitter and its interfaces.
- 5. The unit shall operate in a temperature range from 0°C to 50°C (32°F to 122°F).

C. Electrical

- 1. The splitter shall support optically isolated DMX512 input and thru connections for daisy-chaining.
 - a. 3-pin pin connectors
- 2. The DMX splitter shall support four optically isolated DMX512 outputs.
 - a. 3-pin connectors
- 3. The DMX splitter shall support Remote Device Management (RDM) v1.0.
- 4. The DMX splitter shall be designed to support the following wire terminations:
 - a. 3-pin 9V to 48V DC Power
- 5. All plug-in rising clamp terminals shall be Camden Electronics CTB9208 5.08mm plug-in rising clamp terminals.

6. The unit shall be CE compliant.
7. The unit shall be ETL/cETL listed.

4.3 *Unison Mosaic Remote Input Output Module Series (MRIO)*

A. General

1. The Remote Device shall be a microprocessor-based system specifically designed for control of lighting and other related systems in an architectural or entertainment application.
2. The Remote Device shall be provided with a 5 year manufacturer warranty.

B. Mechanical

1. Enclosure and mounting shall comply with DIN43880 and EN60715 (35/7.5) respectively.
2. The controller shall be a 4 unit DIN enclosure (72.0mm x 90.0mm x 58.0mm).
3. There shall be visual indicators on the Remote Device showing status of the module and its interfaces.
4. There shall be a rotary switch on the Remote Device for up to 15 distinct addresses, with an additional setting to allow remote addressing using software.
5. The Remote Device shall support a configurable full-duplex RS232/RS485 Serial Port and a combination of local contact closures and/or relay outputs specific to each variant.
6. The Remote Device shall be powered using Power over Ethernet (IEEE 802.3af PoE powered device).
7. The controller shall be entirely solid-state with no moving parts, fans or hard disc drives.
8. The Remote Device shall have a recessed switch for resetting the unit without removal of power.
9. The controller shall operate in a temperature range from 0°C to 50°C (32°F to 122°F).

C. Electrical

1. The Controller shall be designed to support the following wire terminations (Camden Electronics CTB9208 5.08mm plug-in rising clamp terminals):

- a. MRIO 4/4
 - 1) Isolated Digital Inputs (4, tri-mode: active high, active low or contact closure)
 - 2) Isolated Relay Outputs (4 relays with 1KV isolation, rated at 250mA at 48VDC)
 - 3) Plug-in rising clamp terminals shall be provided for all connections
 2. In addition there shall be the following standard connectors:
 - a. RJ45 socket for 10/100Base-TX Ethernet
 - b. 9-pin D socket for isolated RS232/RS485 serial input/output
 3. The Remote Device shall support Power over Ethernet (IEE 802.3af).
 4. The Remote Device shall be ETL and cETL Listed.
 5. The Remote Device shall be CE compliant.
- D. Functional
1. Configuration data and/or firmware may be downloaded from a control module over an Ethernet connection.
 2. Up to 100 of each Remote I/O Module variant may be used per system.
- 4.4 Unison Mosaic Ethernet Switch (MSC-NET)**
- A. General
1. The MSC-NET shall be a solid-state device specifically designed as an unmanaged Power over Ethernet (PoE) network switch.
 2. There shall be visual indicators on the Power over Ethernet Switch showing status of the Power over Ethernet Switch and its interfaces.
 3. The Power over Ethernet Switch shall be provided with a 5 year manufacturer warranty.
- B. Mechanical
1. Enclosure and mounting shall comply with DIN43880 and EN60715 (35/7.5) respectively.
 2. The unit shall be a 6 unit DIN enclosure (107.5mm x 90.0mm x 58.0mm).
 3. The unit shall be entirely solid-state with no moving parts or fans.
 4. The unit shall operate in a temperature range from 0°C to 50°C (32°F to 122°F).

C. Electrical

1. The Power over Ethernet Switch shall be designed to support the following wire terminations (Camden Electronics CTB9208 5.08mm plug-in rising clamp terminals):
 - a. 3-pin 48V DC Power
 - b. All plug-in rising clamp terminals shall be provided
2. The Power over Ethernet switch shall support four PoE ports.
 - a. RJ45 socket for 10/100Base-TX Ethernet (IEEE 802.3af) (4)
3. The Power over Ethernet switch shall support one non-PoE port.
 - a. RJ45 socket for 10/100Base-TX Ethernet
4. All Ethernet ports of the Power over Ethernet switch shall support automatic MDI/MDI-X configuration.
5. The unit shall be CE compliant.
6. The unit shall be ETL/cETL listed.

4.5 Unison Mosaic 48 Volt Power Supply for DIN Enclosure

A. General

1. DC power (48V) power supply.
2. A limited power source approved to UL60950-1 2nd Edition, CAN/CSA C22.2 No. 60950-1.07 2nd Edition must be used, with an output voltage of 48V DC.
3. A 48W (48V@1A) supply shall be required.

Fixture Mounting Structures

Fixture mounting requires eight custom mounting structures as shown in the Gateway Lighting Plans and the “Multiple Light Fixture Mounting Bracket” detail shown in the Structural Plans. Fabrication shall be performed according to Section 505 of the Standard Specifications and as required on the Structural Plans. All eight units shall be identical in size and construction. Contractor to confirm actual size based on field measurements prior to fabrication. Contractor shall predrill mounting attachment points prior to painting to minimize corrosion potential.

The fabricated mounting structures shall be cleaned and painted according to Section 506 of the Standard Specifications. The organic zinc rich primer / epoxy / urethane paint system shall be used. The entire paint system shall be shop applied except damaged areas shall be touched up in the field. The color of the final finish coat shall be black.

Attachment method, construction, vibration resistance, and other mounting related considerations to be confirmed by Engineer prior to installation.

Fixtures shall be bolted to the structures with tamper resistant anti-slip stainless steel hardware provided by Contractor with approval of Engineer.

All electrical conduit, wiring, boxes, and connections shall be painted black and attached to the back of the mounting structures to minimize appearance of the infrastructure from the roadway.

Commissioning

This work shall include initial control addressing, mounting, focusing, aiming, and adjusting of all lighting fixtures and accessories. This focus shall be directed by the Lighting Designer as a representative of 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. This initial programming shall include setup of remote access control of the lighting system through an internet connection provided by others.

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.

General Construction Requirements

After erection of all components at the site shown on the plans, inspect all components including paint finishes, steel plates, masonry work, and equipment for damage that has occurred. Repair all damaged portions including touch up of paint, replacement of non-functioning lights, and replacement or repair of damaged steel components to the satisfaction of the Engineer and as required elsewhere within these specifications.

The Contractor shall demonstrate to the Engineer that the lighting system is fully functioning and all connections for electrical wires, components, and hand holes 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.

Repair of Defective Lights and Electrical System

It shall be the Contractor's responsibility to fix or repair nonfunctioning lights and repair or make other repairs necessary for the lights to properly function for a period of (1) one year after demonstration to the Engineer of the fully functioning system as erected in the field. This work shall include removing and reinstalling individual components from the decorative lighting system as needed.

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, clean all soiled surfaces using means and materials compatible with finish surfaces to the satisfaction of the Engineer. Contractor shall protect equipment from damage that could be caused by the Contractor's construction activities in adjacent areas.

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.

Measurement and Payment

This work will be measured and paid for at the contract lump sum price for DECORATIVE LIGHTING SYSTEM COMPLETE, which price shall include all labor, materials, equipment, and submittals necessary to perform the work shown on the plans and specified herein, including all electronic control hardware and software, LED lighting fixtures, control boxes and terminations, cables, accessories, mounting structures and hardware, wiring, conduit, climate controlled enclosure with concrete foundation, shop drawing submittals, commissioning, testing, inspection, painting, repair, cleaning, and protection. Individual components of the decorative lighting system will not be paid for separately.

XX008269 WAYFINDING SIGN

Description

This work shall consist of all labor, tools, equipment, materials, and products as indicated on the plans, or as directed by Engineer, and as required to complete the work for the Wayfinding Sign. The work shall conform to all applicable requirements of Sections 505 and 506 of the Standard Specifications, except as modified in this Section.

Requirements for Wayfinding Sign, including the following applications:

1. Structural Steel
2. Grout
3. Graffiti Control System
4. Translucent White Plexi Glass
5. Light Fixture
6. Concrete Foundation

Materials

1. Structural Steel
 - A. W-Shapes: ASTM A 992/A 992M.
 - B. Channels, Angles-Shapes: ASTM A 36/A 36M.
 - C. Plate and Bar: ASTM A 36/A 36M.
 - D. Cold-Formed Hollow Structural Sections: ASTM A 500, Grade B, structural tubing.
 - E. Steel Pipe: ASTM A 53/A 53M, Type E or S, Grade B.
 - F. Welding Electrodes: Comply with AWS requirements.

- G. Steel Sheet Stock: ASTM A1011/A1011M.
 - H. Anchors and Inserts: Provide nonferrous-metal or hot-dip galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use toothed steel or lead expansion bolt devices for drilled-in-place anchors. Furnish inserts, as required, to be set into concrete or masonry work.
2. Grout
 - A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.
 3. Graffiti Control System
 - A. Provide non-silicone, non-sacrificial, clear penetrating, non-film forming graffiti control system which will penetrate exposed concrete surfaces to provide a surface resistant to water and graffiti. Graffiti control system shall not alter the appearance of the concrete surfaces. Provide graffiti control systems as follows: "Protectosil Antigrffiti", Degussa Corp., or approved equal.
 4. Translucent White Plexi Glass
 - A. UV resistant epoxy adhered to inside steel tube.
 5. Light Fixture
 - A. Furnish and install in ground LED light fixture, all electrical connections in accordance with the appropriate portions of Section 1067 of the Standard Specifications.
 - B. Design based on Model: ETC140-GB LED 611-4020 – inground LED upright. Suitable for installation in concrete foundation, lockable aiming, 30 deg vertical tilt, manufactured by WE-EF Lighting USA LLC, 410-D Keystone Drive, Warrendale PA, 15086, TEL: 724 742 0030, FAX: 724 742 0035, info.usa@we-ef.com, www.we-ef.com, or approved equal.
 6. Concrete Foundation
 - A. Construct reinforced concrete foundation over compacted aggregate base in accordance with the details in the plans. Concrete shall be Class SI according to Section 1020 of the Standard Specifications.

General Requirements

1. Provide the Work in accordance with requirements of the Contract Documents.
2. References:
 - A. American Welding Society (AWS): AWS D1.1 "Structural Welding Code, Steel", and AWS D1.2.
 - B. "Structural Welding Code, Aluminum".
 - C. National Association of Architectural Metal Manufacturers (NAAMM): "Metal Finishes Manual".

- D. American Concrete Institute (ACI) 301, "Specifications for Structural Concrete for Buildings".
 - E. ACI 318, "Building Code Requirements for Reinforced Concrete."
 - F. Concrete Reinforcing Steel Institute (CRSI) "Manual of Standard Practice."
3. Design Wind Load: Provide wayfinding sign assemblies designed, tested, and installed, to withstand positive and negative design wind loads in accordance with the International Building Code requirements.

Submittals

1. Product Data
 - A. Submit manufacturer's specifications, installation instructions, and general recommendations. Include data substantiating that materials are recommended by manufacturer for applications indicated and comply with requirements.
2. Shop Drawings
 - A. Show fabrication of structural-steel components. Shop drawings must be reviewed/stamped/approved by a licensed Illinois Structural Engineer.
 - B. Include details of cuts, connections, holes, and other pertinent data.
 - C. Include embedment drawings.
 - D. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld.
 - E. Indicate type, size, and length of bolts, distinguishing between shop and field bolts.
 - F. Identify pre-tensioned and slip-critical high-strength bolted connections.
 - G. Structural-steel connections not fully detailed on plans shall be designed by a qualified structural engineer licensed in the State of Illinois responsible for their preparation.
 - H. For letters, show dimensions of letter spacing and height. Include scalable layouts.
 - I. Reinforcement detailing fabricating, bending, and placing concrete reinforcement must comply with ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures" showing bar schedules, stirrup spacing, bent bar diagrams, and arrangement of concrete reinforcement.
3. Material Acceptance
 - A. The Contractor must provide a manufacturer's written certification that the material complies with these specifications.
4. Samples
 - A. Label samples to indicate product, characteristics, and locations in the Work. Samples shall be reviewed for color and appearance only. Compliance with all other requirements is the exclusive responsibility of the Contractor. Furnish samples of each lettering type, finish, color and exposed material to be used in the Work, showing maximum range or variation in color and shade.

5. Maintenance Manuals
 - A. Furnish complete manuals describing the materials, devices and procedures to be followed in cleaning and maintaining the Work. Include manufacturers' brochures and parts lists describing the actual materials used in the Work, including major components. Assemble manuals for component parts into single binders identified for each assembly.

Construction Requirements

1. Fabrication
 - A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate according to AISC's "Code of Standard Practice for Steel Buildings and Bridges."
 - B. Identify high-strength structural steel according to ASTM A 6/ A 6M and maintain markings until structural steel has been erected.
 - C. Mark and match-mark materials for field assembly.
 - D. Complete structural-steel assemblies, including welding of units, before starting shop-priming operations.
2. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.
 - A. Plane thermally cut edges to be welded to comply with requirements in AWS D1.1.
 - B. Obtain digital file for vector artwork of thermal cut letters.
3. Bolt Holes: Cut, drill, or punch standard bolt holes perpendicular to metal surfaces.
4. Finishing: Accurately finish ends of columns and other members transmitting bearing loads.
5. Fabrication of Metal Assemblies: Provide custom manufactured metal assemblies, components completely fabricated and finished at factory before delivery to site. Construct to accurate detail and dimensions as shown and as reviewed on shop drawings. Fit and assemble the Work at shop to the greatest extent possible, and mark the components as required to facilitate assembly during installation. Exposed fasteners on finished faces will not be allowed, unless specifically indicated.
 - A. Metal Assemblies: Fabricate exposed surfaces uniformly flat and smooth, without distortion, pitting, or other blemishes. Form exposed metal edges to a smooth radius. Permanently bond the laminated metal components and honeycomb core with adhesive or sealant in accordance with product manufacturer's recommendations. Grind exposed welds and rough areas to make flush with adjacent smooth surfaces.
 - B. Fasteners: Use exposed fasteners only where indicated. Perform drilling and tapping at shop.
 - C. Welding: Welds must be continuous and ground smooth. Comply with American Welding Society and Aluminum Association standards for the type of metals. Ensure all welds are shop welded, no field welds will be approved.
 - D. Dissimilar Materials: Where metal surfaces will be in contact with dissimilar materials, coat the surfaces with epoxy paint in minimum 2.0 mil dry film thickness or provide other means of dielectric separation as recommended by manufacturer to prevent galvanic corrosion.

6. Fabrication, General

- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm) unless otherwise indicated. Remove sharp or rough areas on exposed surfaces. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work. Form exposed work with accurate angles and surfaces and straight edges. Weld corners and seams continuously to comply with the following:
- 1) Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2) Obtain fusion without undercut or overlap.
 - 3) Remove welding flux immediately.
 - 4) At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated.
 - 5) Locate joints where least conspicuous.
 - 6) Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
 - 7) Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8 by 1-1/2 inches (3.2 by 38 mm), with a minimum 6-inch (150-mm) embedment and 2-inch (50-mm) hook, not less than 8 inches (200 mm) from ends and corners of units and 24 inches (600 mm) o.c., unless otherwise indicated.
- C. Finishing of Metal Supports:
- 1) Galvanizing: Provide for all iron and non-stainless steel components. Complete the shop fabrication, including all drilling, cutting or punching, prior to application of the zinc coating. Remove mill scale and rust, clean and pickle the units as required for proper pretreatment of the surfaces. Provide hot-dip galvanizing in accordance with requirements of ASTM A 123 for steel plates, bars and strip greater than 1/8 inch thickness, assembled steel products, and ASTM A153 for iron and steel hardware. Comply with ASTM A 384 and ASTM A 385 to prevent warpage and to provide high quality zinc coating on assemblies.

- D. Finish:
- 1) Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
 - 2) Paint steel substrates as follows:
 - a) All paint applications shall use Tnemec products or approved equal.
 - b) 1st Coat: 90-97 Tneme-Zinc
 - c) 2nd Coat: Epoxy Intermediate Coat N-69 Highbuild Epoxoline II
 - d) 3rd Coat: Tnemec Series 1071 Fluoronar
 - 3) Paint Steel tube base plate and fasteners with:
 - a) Colors: Series 1071 Fluoronar – Deep Space | 34GR
- E. Adjusting:
- 1) Neatly repair minor blemishes or marring on finished surfaces so that repairs are imperceptible.
 - 2) Completely replace components having permanent non-removable scratches, stains, or other defacement.
- F. Touchup Painting:
- 1) Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness. Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit or provide new units.
- G. Cleaning:
- 1) Upon completion of the Work, remove unused materials, debris, containers and equipment from the project site, remove protective coverings and clean the exposed surfaces of the Work to remove dirt, stains and other substances, by methods as recommended by manufacturer.
- H. Protection:
- 1) Protect the Work during the construction period so that it will be without any indication of use or damage.
- I. Leave the Work clean and free from defects at time of Engineer’s acceptance.
7. Installer Qualifications: A qualified installer who participates in the AISC Quality Certification Program and is designated an AISC-Certified Erector.
 8. Fabricator Qualifications: A qualified fabricator who participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant.
 9. Welding: Qualify procedures and personnel according to AWS D1.1, “Structural Welding Code--Steel.”

10. Comply with applicable provisions of the following specifications and documents:
 - A. AISC's "Code of Standard Practice for Steel Buildings and Bridges."
 - B. AISC's "Specification for the Design of Steel Hollow Structural Sections."
 - C. RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
 - D. ACI 301, "Specifications for Structural Concrete for Buildings".
 - E. ACI 318, "Building Code Requirements for Reinforced Concrete."
 - F. Concrete Reinforcing Steel Institute (CRSI) "Manual of Standard Practice."

11. Steel Mockups: Build mockups of architecturally exposed structural steel to set quality standards for fabrication and installation.
 - A. Prior to fabricating wayfinding sign, build mockup that includes painted steel sign face with minimum of two perforated letters with white translucent plexi glass adhered to steel tube to verify selections, thicknesses, colors, spacing, and to demonstrate aesthetic effects.

12. Quality Assurance and Regulatory Requirements: Contractor is solely responsible for quality control of the Work. Comply with applicable requirements of the laws, codes, ordinances and regulations of Federal, State and Municipal authorities having jurisdiction. Obtain necessary approvals from all such authorities.

13. Delivery, Storage, and Handling: Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from erosion and deterioration.
 - A. Store fasteners in a protected place. Clean and relubricate bolts and nuts that become dry or rusty before use.
 - B. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.
 - C. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.
 - D. Properly label all bars with weatherproof tags to facilitate identifications.
 - E. Store reinforcing steel on supports above ground level. Keep covered with tarpaulins.
 - F. Protect coated bars from damage to coating.

14. Coordination
 - A. Furnish anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

15. Existing Conditions: Coordinate with the Work of other trades so as to prevent damage, interference or delay. Obtain templates, drawings, or other information as necessary for proper alignment and connection to such other Work.

Manufacturer's Warranty

1. Finish Warranty: Furnish a five year written warranty, warranting that the finishes shall not develop excessive fading or excessive non-uniformity of color or shade, and shall not crack, peel, pit, corrode, or otherwise fail as a result of defects in materials or workmanship within the following defined limits. Upon notification of such defects, within the warranty period, make necessary repairs or replacement at no additional cost to the Engineer.
 - A. "Excessive Fading": A change in appearance which is perceptible and objectionable as determined by the Engineer when visually compared with the original color range standards.
 - B. "Excessive Non-Uniformity": Non-uniform fading to the extent that adjacent panels have a color difference greater than the original acceptable range of color.
 - C. "Will Not Pit or Otherwise Corrode": No pitting or other type of corrosion, discernible from a distance of 10 feet, resulting from the natural elements in the atmosphere at the project site.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for WAYFINDING SIGN, which price shall include all labor, equipment, and material necessary to complete the work as specified, including the reinforced concrete foundation and compacted aggregate base.

Z0003855 BICYCLE RACKS

Description

This work shall consist of furnishing and installing new Bicycle Racks with concrete foundations according to the details in the plans. Contractor shall be responsible for any damage incurred to Bicycle Racks during installation.

Materials

Design Based on Model:

Varsity Bike Dock DV212 stinger – in ground mount, standard black injection molded urethane smart guard, steel locking loops, wheel pockets, PC/ABS injection molded cap, and with smart parking video QR tag, manufactured by Park A Bike, Inc., 708 Alhambra Blvd, Suite 200, Sacramento, CA, 95816, 1-800-630-7225, Fax: 1-866-532-9049, Website: www.parkabike.com.

Steel:

ASTM A36 Steel for all structural steel plate ASTM A53 Steel for all pipe.

Smart Guards:

Black injection molded polyurethane Smart Guards that attach to the Locking Loops (wings) for extra protection for bikes against paint damage from the metal dock.

Finishes:

Thermoplast black polyolefin BLK23 (marine environment).

Varsity Bike Dock Series Footprint:

A. Setbacks

1. Front of dock to wall Setback: minimum 18" perpendicular to the center base plate. Minimum 16" diagonal 30°.
2. Docks parallel to a side wall: minimum 24" from center base plate.
3. Distance between docks: minimum 32" center to center. Recommended 38½" perpendicular, 44½" diagonal.
4. Parallel to street: minimum 45" from curb.
5. Perpendicular to street: minimum 38" from curb where vehicle parking is present. 18" where vehicle parking is not permitted.

- B. The surface mounted Varsity Bike Dock requires the DVK215 Anchor Kit, which includes anchors and electrolysis block.

Accessories and Hardware:

- A. DV215: Varsity Bike Dock stem and base, locking loops with Nylon 10 black injection molded polyurethane Smart Guards for bike and rack protection, DV carriage Kit.
- B. DV212 Stinger: In ground Anchor Mount for DV215.
- C. DVK215 Surface Mount Anchor Kit: Extended Stainless Steel Anchors and Nylon 10 Block. Required for all concrete and paver installations.

Concrete Base:

Construct concrete base in accordance with the details in the plans. Concrete shall be Class SI according to Section 1020 of the Standard Specifications.

Construction Requirements

Examine footprint and setbacks to ensure conditions are adequate for installation. Do not proceed with installation if conditions are not adequate for install. Notify Engineer if conditions are unsatisfactory.

Make sure the location of the docks is flat, level, square, accurate for alignment, and correctly located for installation of bicycle docks.

In Ground Installation: Bicycle dock is embedded into a concrete base. 12" x 12" square with 30" depth aligned with adjacent paver joints.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for BICYCLE RACKS, which price shall include all labor, equipment, and material necessary to complete the work as specified, including the mounting hardware and concrete base.

Z0004002 BOLLARDS

Description

This work shall consist of furnishing and installing new embedded Bollards with concrete foundations according to the details in the plans. Contractor shall be responsible for any damage incurred to Bollards during installation.

Materials

Design Based on Model:

1. Annapolis Standard Bollard, 12” nominal Diameter Annapolis, Non-lit, embedded in 24” diameter concrete foundation, manufactured by Landscape Forms, Inc., 431 Lawndale Avenue, Kalamazoo, Michigan 49048. Toll Free (800) 521-2546. Phone (269) 381-0396. Fax (269) 381-3455. Website www.landscapeforms.com. E-mail: specify@landscapeforms.com.
2. Other acceptable manufacturers include:
 - a. Forms and Surfaces
 - b. Maglin

The Bollard must be fabricated from tubular Domestic (U.S. manufactured) Structural Steel, in accordance with ASTM A500 Grade B, 2'-9" high, 12" in outside diameter. Color of the coating must be black. Bollard Cap must be aluminum casting

The coating must be applied only after the Bollard has been fabricated.

The final product will be rejected if the coating cracks, ripples in the curved areas or is otherwise damaged due to the fabrication and/or shipping.

Finish on Metal, Except Removable Bollard Socket: Landscape Forms, Inc. "Pangard II".

1. Primer: Rust inhibitor.
2. Topcoat: Thermosetting TGIC polyester powder coat. UV, chip, and flake resistant.
3. Test Results: "Pangard II".
 - a. Gloss Consistency, Gardner 60 Degrees, ASTM D 523: Plus or minus 5 percent from standard.
 - b. UV Resistance, Color and Gloss, ASTM G 155, Cycle 7: Delta E less than 2 at 2.0 mils and less than 20 percent loss.
 - c. Cross-Hatch Adhesion, ASTM D 3359, Method B: 100 percent pass.
 - d. Flexibility Test, Mandrel, ASTM D 522: 3 mm at 2 mils.
 - e. Erichsen Cupping, ISO 1520: 8 mm.
 - f. Impression Hardness, Buchholz, ISO 2815: 95.
 - g. Impact Test, ASTM D 2794: 60 inch-pounds at 2.5 mils.
 - h. Pencil Hardness, ASTM D 3363: 2H minimum.
 - i. Corrosion Resistance, 1,500-Hour Test, ASTM B 117: Max undercutting 1 mm.
 - j. Humidity Resistance, 1,500-Hour Test, ASTM D 2247: Max blisters 1 mm.

Concrete Foundation:

1. Construct concrete foundation in accordance with the details in the plans. Concrete shall be Class SI according to Section 1020 of the Standard Specifications.

Submittals

Bollards: Shop drawings or catalog cut.

Fasteners: Catalog cut.

Certifications: Submit manufacturer's certification that the tubing and coatings meet the project specifications.

Samples: Submit 3-12" long samples of the tubing with finish coat and 4 fasteners.

Construction Requirements

Bollards must be located according to the plans. Mounting of the Bollard must be embedded in 24" diameter concrete foundation. Locations of bollards to be verified in the field. Siting of bollards to be coordinated with the Engineer.

Measurement and Payment

This work will be measured and paid for at the contract unit price each for BOLLARDS, which price shall include all labor, equipment, and material necessary to complete the work as specified, including the mounting hardware and concrete foundation.

STATUS OF UTILITIES TO BE ADJUSTED

The intent is for adjustments to be made prior to the start of construction. It may be necessary for some of the utility relocations to be done during construction and the Contractor will be required to cooperate with the Utility Companies while they perform their work. See the section “Sequence of Construction” within these special provisions. Utility Companies have been provided the following information.

Status

- P – Indicates potential conflict with the proposed improvements requiring further field investigation by the Contractor and utility owner.
- R – Indicates item to be adjusted, relocated, or removed
- NW – Indicates no work required

The locations where proposed traffic signal and roadway lighting conduits cross existing utilities and the locations where proposed traffic signal and roadway lighting foundations are adjacent to existing utilities are not listed in the Status of Utilities to be Adjusted; however, these locations should also be considered potential conflict areas as defined above.

Name and Address of

<u>Utility Co.</u>	<u>Street</u>	<u>Type</u>	<u>Location</u>	<u>Status</u>
Ameren Illinois - Electric 1112 Anthony Dr. Urbana, IL 61801 217-383-7280	Green St.	Light Pole	16+83 Rt.	R
			18+21 Rt.	R
			19+77 Lt.	R
			20+79 Lt.	R
			22+28 Lt.	R
			23+79 Lt.	R
			26+37 Rt.	R
			27+77 Rt.	R
			30+65 Rt.	R
			32+13 Rt.	R
See the Temporary Electric Service Installation Plans, Temporary Lighting Plans, and Roadway Lighting Plans for locations of temporary and permanent electric service installations.			33+70 Lt.	R
		Luminaire and Arm	25+34 Rt.	R
		O.H. Electric Lines	23+79 Lt.	R
			30+65 Rt. to 32+13 Rt.	R
			33+70 Lt.	R

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<u>Name and Address of Utility Co.</u>	<u>Street</u>	<u>Type</u>	<u>Location</u>	<u>Status</u>
Ameren Illinois - Electric (continued)	Green St.	O.H. Electric Lines	35+08 Lt. to 36+63 Lt.	R
		U.G. Electric Lines	16+83 Rt. to 21+00 Rt.	R
			19+77 Lt. to 22+28 Lt.	R
			26+37 Rt. to 27+77 Rt. 27+25 Rt.	R
Chestnut St.	Utility Pole	85+39 Rt.	NW	
	O.H. Electric Lines	85+39 Rt. to 85+60 Rt.	NW	
Locust St.	U.G. Electric Lines	94+35 Lt. to 94+55 Lt.	R	
		95+23 Lt. to 95+86 Lt.	R	
First St.	Light Pole	103+15 Rt.	R	
		Luminaire and Arm	105+84 Lt. 107+48 Lt.	R R
	Utility Pole	102+00 Lt.	NW	
		103+02 Lt.	R	
		103+79 Lt.	R	
		104+61 Lt.	R	
		105+84 Lt.	R	
		106+70 Lt.	NW	
	Handholes	102+94 Rt.	R	
	O.H. Electric Lines	101+85 Lt. to 107+10 Lt.	R	
102+71 Rt. to 103+02 Lt.		R		
U.G. Electric Lines	102+59 Rt. to 103+15 Rt.	R		
Second St. (P2)	U.G. Electric Lines	203+80 Rt. to 204+76 Rt.	R	

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<u>Name and Address of Utility Co.</u>	<u>Street</u>	<u>Type</u>	<u>Location</u>	<u>Status</u>	
Ameren Illinois - Electric (continued)	Third St. (P2)	Utility Pole	304+01 Rt.	NW	
			305+40 Rt.	NW	
			306+21 Rt.	NW	
			O.H. Electric Lines	303+81 Rt. to 307+05 Rt.	NW
				304+01 Rt. to 304+16 Lt.	NW
	Third St. (P3)	Utility Pole		354+46 Rt.	NW
				355+66 Rt.	NW
			O.H. Electric Lines	354+40 Rt. to 355+60 Rt.	NW
	Sixth St.	Utility Pole		655+36 Rt.	NW
			O.H. Electric Lines	653+65 Rt. to 656+10 Rt.	NW
Wright St.	Utility Pole		4032+65 Lt.	NW	
			4032+65 Rt.	R	
			4033+28 Lt.	NW	
		O.H. Electric Lines	4032+65 Lt. to 4033+28 Lt.	NW	
			4032+65 Lt. to 4032+65 Rt.	R	
Ameren Illinois - Gas 1112 Anthony Dr. Urbana, IL 61801 217-383-7280	Green St.	Gas Lines	12+48 Lt. to 39+25 Lt.	P	
		Valves	19+33 Lt.	R	
			20+72 Lt.	R	
			34+61 Lt.	R	
			36+70 Lt.	R	
		Meters	19+25 Lt.	R	
		Locust St.	Gas Lines	94+35 Lt. to 95+86 Lt.	P
		First St.	Gas Lines	101+85 Lt. to 107+10 Lt.	R

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Ameren Illinois - Gas (continued)	Second St. (P2)	Gas Lines	203+80 Rt. to 205+28 Rt.	P
			205+28 Rt. to 207+06 Rt.	P
		Valves	207+03 Rt.	R
	Third St. (P2)	Gas Lines	303+18 Lt. to 305+27 Lt.	P
		Valves	303+88 Rt.	R
	White St.	Gas Lines	3000+91 Lt. to 3010+31 Lt.	P
			3011+24 Lt. to 3014+73 Lt.	P
			3010+78 Lt. to 3023+10 Lt.	P
			3014+73 Rt. to 3018+88 Rt.	P
		Valves	3010+87 Lt.	R
		Meters	3016+89 Lt.	R
	Third St. (P3)	Gas Lines	354+40 Lt. to 355+60 Lt.	P
	Fourth St. (P3)	Gas Lines	455+17 Lt. to 456+50 Lt.	P
			454+20 Rt. to 456+50 Rt.	P
Fifth St.	Gas Lines	554+05 Rt. to 555+90 Rt.	P	
Sixth St.	Gas Lines	653+65 Lt. to 654+59 Lt.	P	
Wright St.	Gas Lines	4028+60 Lt. to 4035+30 Lt.	P	
		4034+13 Rt. to 4035+30 Rt.	P	
AT&T 201 S. Neil St. Champaign, IL 61820 217-398-7990	Green St.	U.G. Communication Lines	12+48 Lt. to Chestnut St.	P
		Handholes	14+40 Lt.	R

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<u>Name and Address of Utility Co.</u>	<u>Street</u>	<u>Type</u>	<u>Location</u>	<u>Status</u>
AT&T (continued)	First St.	U.G. Communication Lines	101+85 Lt. to 107+10 Lt.	R
		Manholes	105+49 Lt.	R
	White St.	U.G. Communication Lines	3000+84 Rt. to 3000+99 Rt. 3000+86 Rt. to 3000+99 Rt.	P P
		Manholes	3000+99 Rt.	R
		U.G. Communication Lines	454+20 Lt. to 456+50 Lt.	R
	Wright St.	U.G. Communication Lines	4028+24 Rt. to 4028+24 Lt. 4028+23 Lt. to 4035+30 Lt.	R P
		Manholes	4032+60 Lt.	R
		Campus Communications Group (CCG) 206 N. Randolph St. Suite 200 Champaign, IL 61820 217-353-3021	White St.	U.G. Communication Lines
Handholes	3000+84 Lt. 3004+87 Lt. 3011+12 Rt. 3011+13 Lt. 3014+28 Rt. 3018+66 Rt.			NW R R R R R
U.G. Communication Lines	454+20 Rt. to 454+80 Rt.			R
U.G. Communication Lines	554+05 Lt. to 554+60 Lt. 554+69 Lt. to 555+90 Lt.			R R

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<u>Name and Address of Utility Co.</u>	<u>Street</u>	<u>Type</u>	<u>Location</u>	<u>Status</u>
CCG (continued)	Sixth St.	U.G. Communication Lines	654+76 Lt. to 656+10 Lt.	R
Comcast 303 E Fairlawn Dr. Urbana, IL 61801 217-384-2510	Second St. (P3)	U.G. Communication Lines	3000+85 Lt. & Rt. (White St. stations)	R
	Third St. (P3)	O.H. Communication Lines	354+40 Lt. to 355+60 Lt.	NW
	Sixth St.	O.H. Communication Lines	653+65 Rt. to 656+10 Rt.	NW
	Wright St.	U.G. Communication Lines	4028+23 Lt. to 4035+30 Lt.	R
		O.H. Communication Lines	4032+65 Lt. to 4032+65 Rt.	R
		Handholes	4032+93 Lt.	R
			4032+90 Lt.	R
			4030+42 Lt.	R
			4030+39 Lt.	R
Conxxus 607 S. State St. Jerseyville, IL 62052 618-535-1081	Wright St.	U.G. Communication Lines	4028+23 Lt. to 4035+30 Lt.	R
		Handholes	4032+93 Lt.	R
			4032+90 Lt.	R
			4030+42 Lt.	R
			4030+39 Lt.	R

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<u>Name and Address of Utility Co.</u>	<u>Street</u>	<u>Type</u>	<u>Location</u>	<u>Status</u>	
Gargoyle Technologies 312 W. Springfield Ave. #200 Urbana, IL 61801 217-367-8656	Wright St.	U.G. Communication Lines	4028+23 Lt. to 4035+30 Lt.	R	
			Handholes	4032+93 Lt.	
				4032+90 Lt.	R
				4030+42 Lt.	R
				4030+39 Lt.	R
ITV3 (UC2B) 602 High Point Ln. East Peoria, IL 61611 309-670-0400	Second St. (P2)	U.G. Communication Lines	203+80 Rt. to 204+21 Lt.	R	
			Handholes	203+90 Rt.	R
			204+21 Lt.	R	
	Third St. (P2)	U.G. Communication Lines	303+18 Lt. to 307+05 Lt	R	
			303+18 Lt. to 307+05 Lt	R	
			Handholes	305+44 Lt.	R
White St.	U.G. Communication Lines	3001+83 Rt. to 3022+50 Rt.	R		
		3022+50 Rt. to 3022+88 Lt.	R		
		3012+98 Lt. to 3017+88 Lt.	R		
		3017+88 Lt. to 3017+93 Rt.	R		
	Handholes	3001+83 Rt.	R		
		3005+01 Rt.	R		
		3010+18 Rt.	R		
		3010+89 Rt.	R		
		3012+98 Lt.	R		
		3014+34 Lt.	R		
		3014+72 Lt	R		
		3016+31 Lt.	R		
		3017+88 Lt.	R		
		3017+93 Rt.	R		

<u>Name and Address of Utility Co.</u>	<u>Street</u>	<u>Type</u>	<u>Location</u>	<u>Status</u>
ITV3 (UC2B) (continued)	Third St. (P3)	U.G. Communication Lines	354+40 Lt. to 354+76 Lt.	R
			454+20 Rt. to 456+50 Rt.	R
	Fourth St. (P3)	U.G. Communication Lines	4030+56 Rt. to 4034+56 Rt.	R
			4034+56 Rt. to 4034+53 Lt.	R
			4034+53 Lt. to 4035+30 Lt.	R
			Handholes	4030+56 Rt. R 4033+59 Rt. R 4034+53 Lt. R 4034+56 Rt. R
	Wright St.	U.G. Communication Lines	101+85 Rt. to 106+58 Rt.	R
			106+58 Lt. & Rt.	R
			Manholes	103+84 Rt. R
			Handholes	106+58 Lt. R
Lightcore 1151 Century Tel Dr. Bldg. A Wentzville, MO 63385 800-604-6688	First St.	U.G. Communication Lines	4028+23 Lt. to 4035+30 Lt.	R
			Handholes	4032+93 Lt. R 4032+90 Lt. R 4030+42 Lt. R 4030+39 Lt. R
			Handholes	102+62 Rt. R 106+54 Rt. R
			Handholes	
			Handholes	
Metro Communications 8 S. Washington St. Suite 200 Sullivan, IL 61951 217-728-2827	Wright St.	U.G. Communication Lines	101+85 Rt. to 107+10 Rt	R
			106+55 Lt. & Rt.	R
			Handholes	
Windstream/KDL 102 East Shafer St. Forsyth, IL 62535 319-790-1464	First St.	U.G. Communication Lines	101+85 Rt. to 107+10 Rt	R
			106+55 Lt. & Rt.	R
			102+62 Rt.	R
			106+54 Rt.	R

<u>Name and Address of Utility Co.</u>	<u>Street</u>	<u>Type</u>	<u>Location</u>	<u>Status</u>
Windstream/KDL (continued)	Second St. (P2)	U.G. Communication Lines	203+80 Rt. to 207+10 Rt.	R
		Handholes	206+60 Lt.	R
	Fourth St.	U.G. Communication Lines	454+20 Lt. to 456+50 Lt.	R
	Sixth St.	U.G. Communication Lines	653+65 Lt. to 656+10 Lt.	P

City of Champaign
 702 Edgebrook Dr.
 Champaign, IL 61820
 217-403-4710

All work associated with City of Champaign existing and proposed facilities shall be performed by the Contractor. See Plan and Profile Sheets, Sanitary Sewer Plans, Traffic Signal Plans, and Roadway Lighting Plans for additional information.

Illinois American Water
 1406 Cardinal Ct.
 Urbana, IL 61801
 217-373-3286

All work associated with Illinois American Water existing and proposed facilities shall be performed by the Contractor. See Water Main Plans for additional information.

Urbana-Champaign
 Sanitary District
 P.O. Box 669
 Urbana, IL 61803
 217-367-3409

All work associated with Urbana-Champaign Sanitary District existing and proposed facilities shall be performed by the Contractor. See Sanitary Sewer Plans for additional information.

IDOT TRAINING PROGRAM GRADUATE ON-THE-JOB TRAINING SPECIAL PROVISION (TPG)

Effective: August 1, 2012

Revised: February 1, 2014

In addition to the Contractor's equal employment opportunity affirmative action efforts undertaken as elsewhere required by this Contract, the Contractor is encouraged to participate in the incentive program to provide additional on-the-job training to certified graduates of IDOT funded pre-apprenticeship training programs outlined by this Special Provision.

It is the policy of IDOT to fund IDOT pre-apprenticeship training programs throughout Illinois to provide training and skill-improvement opportunities to assure the increased participation of minority groups, disadvantaged persons and women in all phases of the highway construction industry. The intent of this IDOT Training Program Graduate (TPG) Special Provision is to place certified graduates of these IDOT funded pre-apprentice training programs on IDOT project sites when feasible, and provide the graduates with meaningful on-the-job training intended to lead to journey-level employment. IDOT and its sub-recipients, in carrying out the responsibilities of a state contract, shall determine which construction contracts shall include "Training Program Graduate Special Provisions." To benefit from the incentives to encourage the participation in the additional on-the-job training under this Training Program Graduate Special Provision, the Contractor shall make every reasonable effort to employ certified graduates of IDOT funded Pre-apprenticeship Training Programs to the extent such persons are available within a reasonable recruitment area.

Participation pursuant to IDOT's requirements by the Contractor or subcontractor in this Training Program Graduate (TPG) Special Provision entitles the Contractor or subcontractor to be reimbursed at \$15.00 per hour for training given a certified TPG on this contract. As approved by the Department, reimbursement will be made for training persons as specified herein. This reimbursement will be made even though the Contractor or subcontractor may receive additional training program funds from other sources for other trainees, provided such other source does not specifically prohibit the Contractor or subcontractor from receiving other reimbursement. For purposes of this Special Provision the Contractor is not relieved of requirements under applicable federal law, the Illinois Prevailing Wage Act, and is not eligible for other training fund reimbursements in addition to the Training Program Graduate (TPG) Special Provision reimbursement.

No payment shall be made to the Contractor if the Contractor or subcontractor fails to provide the required training. It is normally expected that a TPG will begin training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project through completion of the contract, so long as training opportunities exist in his work classification or until he has completed his training program. Should the TPG's employment end in advance of the completion of the contract, the Contractor shall promptly notify the designated IDOT staff member under this Special Provision that the TPG's involvement in the contract has ended and supply a written report of the reason for the end of the involvement, the hours completed by the TPG under 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 TPG.

The Contractor will provide for the maintenance of records and furnish periodic reports documenting its performance under this Special Provision.

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 certified TRAINEES TRAINING PROGRAM GRADUATE. The estimated total number of hours, unit price and total price have been included in the schedule of prices.

The Contractor shall provide training opportunities aimed at developing full journeyworker in the type of trade or job classification involved. The initial number of TPGs for which the incentive is available under this contract is 4 . During the course of performance of the Contract the Contractor may seek approval from the Department for additional incentive eligible TPGs. In the event the Contractor subcontracts a portion of the contract work, it shall determine how many, if any, of the TPGs 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 insure that this Training Program Graduate Special Provision is made applicable to such subcontract if the TPGs are to be trained by a subcontractor and that the incentive payment is passed on to each subcontractor.

For the Contractor to meet the obligations for participation in this TPG incentive program under this Special Provision, the Department has contracted with several entities to provide screening, tutoring and pre-training to individuals interested in working in the applicable construction classification and has certified those students who have successfully completed the program and are eligible to be TPGs. A designated IDOT staff member, the Director of the Office of Business and Workforce Diversity (OBWD), will be responsible for providing assistance and referrals to the Contractor for the applicable TPGs. For this contract, the Director of OBWD is designated as the responsible IDOT staff member to provide the assistance and referral services related to the placement for this Special Provision. For purposes of this Contract, contacting the Director of OBWD and interviewing each candidate he/she recommends constitutes reasonable recruitment.

Prior to commencing construction, the Contractor shall submit to the Department for approval the TPGs to be trained in each selected classification. Furthermore, the Contractor shall specify the starting time for training in each of the classifications. No employee shall be employed as a TPG in any classification in which he/she has successfully completed a training course leading to journeyman status or in which he/she has been employed as a journeyman. Notwithstanding the on-the-job training purpose of this TPG Special Provision, some offsite training is permissible as long as the offsite training is an integral part of the work of the contract and does not comprise a significant part of the overall training.

Training and upgrading of TPGs of IDOT pre-apprentice training programs is intended to move said TPGs toward journeyman status and is the primary objective of this Training Program Graduate Special Provision. Accordingly, the Contractor shall make every effort to enroll TPGs by recruitment through the IDOT funded TPG programs to the extent such persons are available within a reasonable area of recruitment. The Contractor will be responsible for demonstrating the steps that it has taken in pursuance thereof, prior to a determination as to whether the Contractor is in compliance and entitled to the Training Program Graduate Special Provision \$15.00 an hour incentive.

The Contractor or subcontractor shall provide each TPG with a certificate showing the type and length of training satisfactorily completed.

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 Champaign

City of Urbana

University of Illinois at Urbana-Champaign

Champaign-Urbana Mass Transit District

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 and Streets
SPECIAL PROVISION
FOR
CONSTRUCTION AND MAINTENANCE SIGNS

Effective: January 1, 2004
Revised: June 1, 2007

All references to Sections or Articles in this specification shall be construed to mean a specific Section or Article of the Standard Specifications for Road and Bridge Construction, adopted by the Department of Transportation.

701.14. Signs. Add the following paragraph to Article 701.14:

All warning signs shall have minimum dimensions of 1200 mm x 1200 mm (48" x 48") and have a black legend on a fluorescent orange reflectorized background, meeting, as a minimum, Type AP reflectivity requirements of Table 1091-2 in Article 1091.02.

ACCESSIBLE PEDESTRIAN SIGNALS (APS) (BDE)

Effective: April 1, 2003

Revised: January 1, 2014

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.

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.

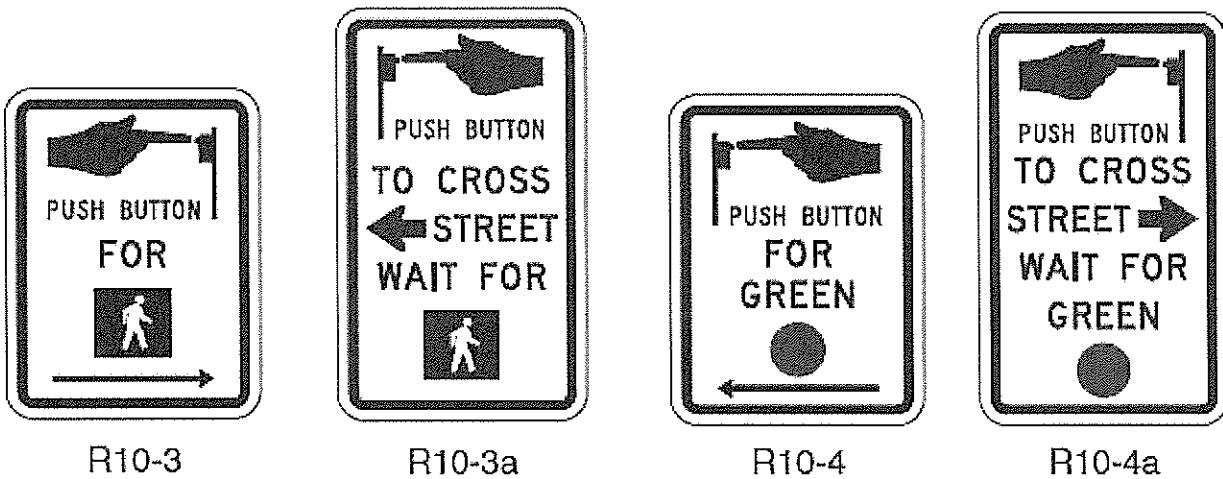
Where two accessible pedestrian pushbuttons are separated by at least 10 ft (3 m), the walk indication shall be an audible percussive tone. It shall repeat at 8 to 10 ticks per second with a dominant frequency of 880 Hz.

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 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 be one of the following standard MUTCD designs:



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.

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

BUTT JOINTS (BDE)

Effective: July 1, 2016

Add the following to Article 406.08 of the Standard Specifications.

- “(c) Temporary Plastic Ramps. Temporary plastic ramps shall be made of high density polyethylene meeting the properties listed below. Temporary plastic ramps shall only be used on roadways with permanent posted speeds of 55 mph or less. The ramps shall have a minimum taper rate of 1:30 (V:H). The leading edge of the plastic ramp shall have a maximum thickness of 1/4 in. (6 mm) and the trailing edge shall match the height of the adjacent pavement \pm 1/4 in. (\pm 6 mm).

The ramp will be accepted by certification. The Contractor shall furnish a certification from the manufacturer stating the temporary plastic ramp meets the following requirements.

Physical Property	Test Method	Requirement
Melt Index	ASTM D 1238	8.2 g/10 minutes
Density	ASTM D 1505	0.965 g/cc
Tensile Strength @ Break	ASTM D 638	2223 psi (15 MPa)
Tensile Strength @ Yield	ASTM D 638	4110 psi (28 MPa)
Elongation @ Yield ^{1/} , percent	ASTM D 638	7.3 min.
Durometer Hardness, Shore D	ASTM D 2240	65
Heat Deflection Temperature, 66 psi	ASTM D 648	176 °F (80 °C)
Low Temperature Brittleness, F ₅₀	ASTM D 746	<-105 °F (<-76 °C)

1/ Crosshead speed -2 in./minute

The temporary plastic ramps shall be installed according to the manufacturer's specifications and fastened with anchors meeting the manufacturer's recommendations. Temporary plastic ramps that fail to stay in place or create a traffic hazard shall be replaced immediately with temporary HMA ramps at the Contractor's expense.”

80366

COARSE AGGREGATE QUALITY (BDE)

Effective: July 1, 2015

Revise Article 1004.01(b) of the Standard Specifications to read:

“(b) Quality. The coarse aggregate shall be according to the quality standards listed in the following table.

COARSE AGGREGATE QUALITY				
QUALITY TEST	CLASS			
	A	B	C	D
Na ₂ SO ₄ Soundness 5 Cycle, ITP 104 ^{1/} , % Loss max.	15	15	20	25 ^{2/}
Los Angeles Abrasion, ITP 96 ^{11/} , % Loss max.	40 ^{3/}	40 ^{4/}	40 ^{5/}	45
Minus No. 200 (75 µm) Sieve Material, ITP 11	1.0 ^{6/}	---	2.5 ^{7/}	---
Deleterious Materials ^{10/}				
Shale, % max.	1.0	2.0	4.0 ^{8/}	---
Clay Lumps, % max.	0.25	0.5	0.5 ^{8/}	---
Coal & Lignite, % max.	0.25	---	---	---
Soft & Unsound Fragments, % max.	4.0	6.0	8.0 ^{8/}	---
Other Deleterious, % max.	4.0 ^{9/}	2.0	2.0 ^{8/}	---
Total Deleterious, % max.	5.0	6.0	10.0 ^{8/}	---
Oil-Stained Aggregate ^{10/} , % max	5.0	---	---	

1/ Does not apply to crushed concrete.

2/ For aggregate surface course and aggregate shoulders, the maximum percent loss shall be 30.

3/ For portland cement concrete, the maximum percent loss shall be 45.

4/ Does not apply to crushed slag or crushed steel slag.

5/ For hot-mix asphalt (HMA) binder mixtures, except when used as surface course, the maximum percent loss shall be 45.

6/ For crushed aggregate, if the material finer than the No. 200 (75 µm) sieve consists of the dust from fracture, essentially free from clay or silt, this percentage may be increased to 2.5.

7/ Does not apply to aggregates for HMA binder mixtures.

8/ Does not apply to Class A seal and cover coats.

9/ Includes deleterious chert. In gravel and crushed gravel aggregate, deleterious chert shall be the lightweight fraction separated in a 2.35 heavy media separation. In crushed stone aggregate, deleterious chert shall be the lightweight fraction separated in a 2.55 heavy media separation. Tests shall be run according to ITP 113.

10/ Test shall be run according to ITP 203.

11/ Does not apply to crushed slag.

All varieties of chert contained in gravel coarse aggregate for portland cement concrete, whether crushed or uncrushed, pure or impure, and irrespective of color, will be classed as chert and shall not be present in the total aggregate in excess of 25 percent by weight (mass).

Aggregates used in Class BS concrete (except when poured on subgrade), Class PS concrete, and Class PC concrete (bridge superstructure products only, excluding the approach slab) shall contain no more than two percent by weight (mass) of deleterious materials. Deleterious materials shall include substances whose disintegration is accompanied by an increase in volume which may cause spalling of the concrete."

80360

CONCRETE MIX DESIGN – DEPARTMENT PROVIDED (BDE)

Effective: January 1, 2012

| Revised: April 1, 2016

| For the concrete mix design requirements in Article 1020.05(a) of the Standard Specifications, the Contractor has the option to request the Engineer determine mix design material proportions for Class PV, PP, RR, BS, DS, SC, and SI concrete. A single mix design for each class of concrete will be provided. Acceptance by the Contractor to use the mix design developed by the Engineer shall not relieve the Contractor from meeting specification requirements.

80277

DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (DBE)

Effective: September 1, 2000

Revised: July 2, 2016

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 that 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 that 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 that, in the absence of unlawful discrimination, and in an arena of fair and open competition, DBE companies can be expected to perform 3.00 % of the work. This percentage is set as the DBE participation goal for this contract. Consequently, in addition to the other award criteria established for this contract, the Department will only award this contract to a bidder who makes a good faith effort to meet this goal of DBE participation in the performance of the work. 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 that enough DBE participation has been obtained to meet the goal or,
- (b) The bidder documents that 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 required prior to the award of the contract and the failure of the low bidder to comply will render the bid not responsive.

In order to assure the timely award of the contract, the low bidder shall submit:

- (a) The bidder shall submit a DBE Utilization Plan on completed Department forms SBE 2025 and 2026.
 - (1) The final Utilization Plan must be submitted within five calendar days after the date of the letting in accordance with subsection (a)(2) of Bidding Procedures.

- (2) To meet the five day requirement, the bidder may send the Utilization Plan electronically by scanning and sending to DOT.DBE.UP@illinois.gov or faxing to (217) 785-1524. The subject line must include the bid Item Number and the Letting date. The Utilization Plan should be sent as one .pdf file, rather than multiple files and emails for the same Item Number. It is the responsibility of the bidder to obtain confirmation of email or fax delivery.

Alternatively, the Utilization Plan may be sent by certified mail or delivery service within the five calendar day period. If a question arises concerning the mailing date of a Utilization Plan, the mailing date will be established by the U.S. Postal Service postmark on the certified mail receipt from the U.S. Postal Service or the receipt issued by a delivery service when the Utilization Plan is received by the Department. It is the responsibility of the bidder to ensure the postmark or receipt date is affixed within the five days if the bidder intends to rely upon mailing or delivery to satisfy the submission day requirement. The Utilization Plan is to be submitted to:

Illinois Department of Transportation
Bureau of Small Business Enterprises
Contract Compliance Section
2300 South Dirksen Parkway, Room 319
Springfield, Illinois 62764

The Department will not accept a Utilization Plan if it does not meet the five day submittal requirement and the bid will be declared not responsive. In the event the bid is declared not responsive due to a failure to submit a Utilization Plan or failure to comply with the bidding procedures set forth herein, 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. The Department reserves the right to invite any other bidder to submit a Utilization Plan at any time for award consideration.

- (b) The Utilization Plan shall indicate that the bidder either has obtained sufficient DBE participation commitments to meet the contract goal or has not obtained enough DBE participation commitments in spite of a good faith effort to meet the goal. The Utilization Plan shall further provide the name, telephone number, and telefax number of a responsible official of the bidder designated for purposes of notification of Utilization Plan approval or disapproval under the procedures of this Special Provision.
- (c) The Utilization Plan shall include a DBE Participation Commitment Statement, Department form SBE 2025, for each DBE proposed for the performance of work to achieve the contract goal. For bidding purposes, submission of the completed SBE 2025 forms, signed by the DBEs and scanned or faxed to the bidder will be acceptable as long as the original is available and provided upon request. All elements of information indicated on the said form shall be provided, including but not limited to the following:

- (1) The names and addresses of DBE firms that will participate in the contract;
- (2) A description, including pay item numbers, of the work each DBE will perform;
- (3) The dollar amount of the participation of each DBE firm participating. The dollar amount of participation for identified work shall specifically state the quantity, unit price, and total subcontract price for the work to be completed by the DBE. If partial pay items are to be performed by the DBE, indicate the portion of each item, a unit price where appropriate and the subcontract price amount;
- (4) DBE Participation Commitment Statements, form SBE 2025, signed by the bidder and each participating DBE firm documenting the commitment to use the DBE subcontractors whose participation is submitted to meet the contract goal;
- (5) If the bidder is a joint venture comprised of DBE companies and non-DBE companies, the Utilization Plan must also include a clear identification of the portion of the work to be performed by the DBE partner(s); and,
- (6) If the contract goal is not met, evidence of good faith efforts; 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.

GOOD FAITH EFFORT PROCEDURES. The contract will not be awarded until the Utilization Plan submitted by the apparent successful bidder is approved. All information submitted by the bidder must be complete, accurate and adequately document that enough DBE participation has been obtained or document that 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. The Utilization Plan will not be approved by the Department if the Utilization Plan does not document sufficient DBE participation to meet the contract goal unless the apparent successful bidder documented in the Utilization Plan that it made a good faith effort to meet the goal. This means that 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 that 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 prime 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 subsection (c)(6) of 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 that the apparent successful 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 that it is otherwise eligible for award. If the Department determines that 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 shall include a statement of reasons for the 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 in order to cure the deficiency.
- (c) The bidder may request administrative reconsideration of a determination adverse to the bidder within the five working days after the receipt of the notification date of the determination by delivering the request to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764 (Telefax: (217) 785-1524). Deposit of the request in the United States mail on or before the fifth business day shall not be deemed delivery. The determination shall become final if a request is not made and delivered. 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 forwarded to the Department's Reconsideration Officer. The Reconsideration Officer will extend an opportunity to the bidder to meet in person in order 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 consideration, 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 prime 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 submitted to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764. Telephone number (217) 785-4611. Telefax number (217) 785-1524.
- (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, then a new Request for Approval of Subcontractor shall not be required. However, the Contractor must document efforts to assure that 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 DBE subcontracts to IDOT 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) That 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) That the DBE is aware that 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) That 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 prime contractor;
- (3) The listed DBE subcontractor fails or refuses to meet the prime 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) You have determined that the listed DBE subcontractor is not a responsible contractor;
- (7) The listed DBE subcontractor voluntarily withdraws from the projects and provides to you written notice 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 prime Contractor seeks to terminate a DBE it relied upon to obtain the contract so that the prime Contractor can self-perform the work for which the DBE contractor was engaged or so that the prime 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 shall provide a written determination to the Contractor stating whether or not good faith efforts have been demonstrated.

- (f) PAYMENT RECORDS. The Contractor shall maintain a record of payments for work performed to the DBE participants. The records shall be made available to the Department for inspection upon request. 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 thirty 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 that 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.

ENGINEER'S FIELD OFFICE (BDE)

Effective: April 1, 2016

Revise the fifth sentence of the first paragraph of Article 670.07 of the Standard Specifications to read:

"This price shall include all utility costs and shall reflect the salvage value of the building or buildings, equipment, and furniture which remain the property of the Contractor after release by the Engineer, except the Department will pay that portion of the monthly long distance, monthly local telephone, and online data usage that, when combined, exceed \$250."

80363

EQUAL EMPLOYMENT OPPORTUNITY (BDE)

Effective: April 1, 2015

FEDERAL AID CONTRACTS. Revise the following section of Check Sheet #1 of the Recurring Special Provisions to read:

"EQUAL EMPLOYMENT OPPORTUNITY

In the event of the Contractor's noncompliance with the provisions of this Equal Employment Opportunity Clause, the Illinois Human Rights Act, or the Illinois Department of Human Rights Rules and Regulations, the Contractor may be declared ineligible for future contracts or subcontracts with the State of Illinois or any of its political sub-divisions or municipal corporations, and the contract may be cancelled or voided in whole or in part, and such other sanctions or penalties may be imposed or remedies invoked as provided by statute or regulation.

During the performance of this Contract, the Contractor agrees as follows:

- (1) That it will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, marital status, order of protection status, national origin or ancestry, citizenship status, age, physical or mental disability unrelated to ability, military status, or an unfavorable discharge from military service; and further that it will examine all job classifications to determine if minority persons or women are underutilized and will take appropriate affirmative action to rectify any such underutilization.
- (2) That, if it hires additional employees in order to perform this contract or any portion hereof, it will determine the availability (according to the Illinois Department of Human Rights Rules and Regulations) of minorities and women in the area(s) from which it may reasonably recruit and it will hire for each job classification for which employees are hired in such a way that minorities and women are not underutilized.
- (3) That, in all solicitations or advertisements for employees placed by it or on its behalf, it will state that all applicants will be afforded equal opportunity without discrimination because of race, color, religion, sex, sexual orientation, marital status, order of protection status, national origin or ancestry, citizenship status, age, physical or mental disability unrelated to ability, military status or an unfavorable discharge from military service.
- (4) That it will send to each labor organization or representative of workers with which it has or is bound by a collective bargaining or other agreement or understanding, a notice advising such labor organization or representative of the Contractor's obligations under the Illinois Human Rights Act and the Illinois Department of Human Rights Rules and Regulations. If any labor organization or representative fails or refuses to cooperate with the Contractor in its efforts to comply with such Act and Rules and Regulations, the

Contractor will promptly so notify the Illinois Department of Human Rights and IDOT and will recruit employees from other sources when necessary to fulfill its obligations thereunder.

- (5) That it will submit reports as required by the Illinois Department of Human Rights Rules and Regulations, furnish all relevant information as may from time to time be requested by the Illinois Department of Human Rights or IDOT, and in all respects comply with the Illinois Human Rights Act and the Illinois Department of Human Rights Rules and Regulations.
- (6) That it will permit access to all relevant books, records, accounts, and work sites by personnel of IDOT and the Illinois Department of Human Rights for purposes of investigation to ascertain compliance with the Illinois Human Rights Act and the Illinois Department of Human Rights Rules and Regulations.
- (7) That it will include verbatim or by reference the provisions of this clause in every subcontract it awards under which any portion of the contract obligations are undertaken or assumed, so that the provisions will be binding upon the subcontractor. In the same manner as with other provisions of this contract, the Contractor will be liable for compliance with applicable provisions of this clause by subcontractors; and further it will promptly notify IDOT and the Illinois Department of Human Rights in the event any subcontractor fails or refuses to comply with these provisions. In addition, the Contractor will not utilize any subcontractor declared by the Illinois Human Rights Commission to be ineligible for contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations."

STATE CONTRACTS. Revise Section II of Check Sheet #5 of the Recurring Special Provisions to read:

"II. EQUAL EMPLOYMENT OPPORTUNITY

In the event of the Contractor's noncompliance with the provisions of this Equal Employment Opportunity Clause, the Illinois Human Rights Act or the Illinois Department of Human Rights Rules and Regulations, the Contractor may be declared ineligible for future contracts or subcontracts with the State of Illinois or any of its political sub-divisions or municipal corporations, and the contract may be cancelled or voided in whole or in part, and such other sanctions or penalties may be imposed or remedies invoked as provided by statute or regulation.

During the performance of this Contract, the Contractor agrees as follows:

1. That it will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, marital status, order of protection status, national origin or ancestry, citizenship status, age, physical or mental disability unrelated to ability, military status, or an unfavorable discharge from military service; and further

that it will examine all job classifications to determine if minority persons or women are underutilized and will take appropriate affirmative action to rectify any such underutilization.

2. That, if it hires additional employees in order to perform this contract or any portion hereof, it will determine the availability (according to the Illinois Department of Human Rights Rules and Regulations) of minorities and women in the area(s) from which it may reasonably recruit and it will hire for each job classification for which employees are hired in such a way that minorities and women are not underutilized.
3. That, in all solicitations or advertisements for employees placed by it or on its behalf, it will state that all applicants will be afforded equal opportunity without discrimination because of race, color, religion, sex, sexual orientation, marital status, order of protection status, national origin or ancestry, citizenship status, age, physical or mental disability unrelated to ability, military status, or an unfavorable discharge from military service.
4. That it will send to each labor organization or representative of workers with which it has or is bound by a collective bargaining or other agreement or understanding, a notice advising such labor organization or representative of the Contractor's obligations under the Illinois Human Rights Act and the Illinois Department of Human Rights Rules and Regulations. If any labor organization or representative fails or refuses to cooperate with the Contractor in its efforts to comply with such Act and Rules and Regulations, the Contractor will promptly so notify the Illinois Department of Human Rights and IDOT and will recruit employees from other sources when necessary to fulfill its obligations thereunder.
5. That it will submit reports as required by the Illinois Department of Human Rights Rules and Regulations, furnish all relevant information as may from time to time be requested by the Illinois Department of Human Rights or IDOT, and in all respects comply with the Illinois Human Rights Act and the Illinois Department of Human Rights Rules and Regulations.
6. That it will permit access to all relevant books, records, accounts and work sites by personnel of IDOT and the Illinois Department of Human Rights for purposes of investigation to ascertain compliance with the Illinois Human Rights Act and the Illinois Department of Human Rights Rules and Regulations.
7. That it will include verbatim or by reference the provisions of this clause in every subcontract it awards under which any portion of the contract obligations are undertaken or assumed, so that the provisions will be binding upon the subcontractor. In the same manner as with other provisions of this contract, the Contractor will be liable for compliance with applicable provisions of this clause by subcontractors; and further it will promptly notify IDOT and the Illinois Department of Human Rights in the event any subcontractor fails or refuses to comply with these provisions. In addition, the Contractor will not utilize any subcontractor declared by the Illinois Human Rights

Commission to be ineligible for contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations.”

80358

ERRATA FOR THE 2016 STANDARD SPECIFICATIONS (BDE)

Effective: April 1, 2016

- Page 84 Article 204.02. In the seventh line of the first paragraph change "AASHTO T 99 (Method C)" to "Illinois Modified AASHTO T 99 (Method C)".
- Page 90 Article 205.06. In the first sentence of the third paragraph change "AASHTO T 99 (Method C)" to "Illinois Modified AASHTO T 99 (Method C)".
- Page 91 Article 205.06. In the first sentence of the fourth paragraph change "AASHTO T 99 (Method C)" to "Illinois Modified AASHTO T 99 (Method C)", and in the second sentence change "AASHTO T 224" to "Illinois Modified AASHTO T 99 (Annex A1)".
- Page 91 Article 205.06. In the second line of the fifth paragraph change "AASHTO T 191" to "Illinois Modified AASHTO T 191".
- Page 91 Article 205.06. In the sixth line of the eighth paragraph change "AASHTO T 99 (Method C)" to "Illinois Modified AASHTO T 99 (Method C)".
- Page 148 Article 302.09. In the second sentence of the fifth paragraph change "AASHTO T 191" to "Illinois Modified AASHTO T 191", and in the third sentence change "AASHTO T 99" to "Illinois Modified AASHTO T 99".
- Page 152 Article 310.09. In the second sentence of the second paragraph change "AASHTO T 191" to "Illinois Modified AASHTO T 191", and in the third sentence change "AASHTO T 99" to "Illinois Modified AASHTO T 99".
- Page 155 Article 311.05(a). In the first sentence of the fifth paragraph change "AASHTO T 99 (Method C)" to "Illinois Modified AASHTO T 99 (Method C)", and in the second sentence change "AASHTO T 224" to "Illinois Modified AASHTO T 99 (Annex A1)".
- Page 155 Article 311.05(a). In the second line of the sixth paragraph change "AASHTO T 191" to "Illinois Modified AASHTO T 191".
- Page 163 Article 351.05(a). In the second sentence of the fifth paragraph change "AASHTO T 99 (Method C)" to "Illinois Modified AASHTO T 99 (Method C)", and in the third sentence change "AASHTO T 224" to "Illinois Modified AASHTO T 99 (Annex A1)".
- Page 163 Article 351.05(a). In the second line of the sixth paragraph change "AASHTO T 191" to "Illinois Modified AASHTO T 191".
- Page 169 Article 352.11. In the second sentence of the fourth paragraph change "AASHTO T 191" to "Illinois Modified AASHTO T 191", and in the third sentence change "AASHTO T 134 (Method B)" to "Illinois Modified AASHTO T 134 (Method B)".

Page 169 Article 352.12. In the first sentence of the first paragraph change "AASHTO T 22" to "Illinois Modified AASHTO T 22", and in the second sentence change "AASHTO T 134 (Method B)" to "Illinois Modified AASHTO T 134 (Method B)".

Page 196 Article 406.07(a). After the footnotes in Table 1 - Minimum Roller Requirements for HMA add the following:

"EQUIPMENT DEFINITION

- V_s - Vibratory roller, static mode, minimum 125 lb/in. (2.2 kg/mm) of roller width. Maximum speed = 3 mph (5 km/h) or 264 ft/min (80 m/min). If the vibratory roller does not eliminate roller marks, its use shall be discontinued and a tandem roller, adequately ballasted to remove roller marks, shall be used.
- V_D - Vibratory roller, dynamic mode, operated at a speed to produce not less than 10 impacts/ft (30 impacts/m).
- P - Pneumatic-tired roller, max. speed 3 1/2 mph (5.5 km/h) or 308 ft/min (92 m/min). The pneumatic-tired roller shall have a minimum tire pressure of 80 psi (550 kPa) and shall be equipped with heat retention shields. The self-propelled pneumatic-tired roller shall develop a compression of not less than 300 lb (53 N) nor more than 500 lb (88 N) per in. (mm) of width of the tire tread in contact with the HMA surface.
- T_B - Tandem roller for breakdown rolling, 8 to 12 tons (7 to 11 metric tons), 250 to 400 lb/in. (44 to 70 N/mm) of roller width, max. speed = 3 1/2 mph (5.5 km/h) or 308 ft/min (92 m/min).
- T_F - Tandem roller for final rolling, 200 to 400 lb/in. (35 to 70 N/mm) of roller width with minimum roller width of 50 in. (1.25 m). Ballast shall be increased if roller marks are not eliminated. Ballast shall be decreased if the mat shoves or distorts.
- 3W- Three wheel roller, max. speed = 3 mph (5 km/h) or 264 ft/min (80 m/min), 300 to 400 lb/in. (53 to 70 N/mm) of roller width. The three-wheel roller shall weigh 10 to 12 tons (9 to 11 metric tons)."

Page 331 Article 505.04(p). Under Range of Clearance in the first table change "in. x 10⁻⁶" to "in. x 10⁻³".

Page 444 Article 542.03. In the Notes in Table IIIB add "CPP Corrugated Polypropylene (CPP) pipe with smooth interior".

- Page 445 Article 542.03. In the fourth column in Table IIIB (metric) change the heading for Type 5 pipe from "CPE" to "CPP".
- Page 445 Article 542.03. In the Notes in Table IIIB (metric) change "PE Polyethylene (PE) pipe with a smooth interior" to "CPP Corrugated Polypropylene (CPP) pipe with smooth interior".
- Page 449 Article 542.04(f)(2). In the third line of the second paragraph change "AASHTO T 99 (Method C)" to "Illinois Modified AASHTO T 99 (Method C)".
- Page 544 Article 639.03. In the first sentence of the first paragraph change "AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, Traffic Signals," to "AASHTO "LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals,"".
- Page 546 Article 640.03. In the first sentence of the first paragraph change "AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals" to "AASHTO "LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals"".
- Page 548 Article 641.03. In the first sentence of the first paragraph change "AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaire and Traffic Signals," to "AASHTO "LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals,"".
- Page 621 Article 727.03. In the first sentence of the third paragraph change "AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals" to "AASHTO "LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals"".
- Page 629 Article 734.03(a). In the fourth line of the second paragraph change "AASHTO T 99 (Method C)" to "Illinois Modified AASHTO T 99 (Method C)".
- Page 649 Article 801.02. In the first sentence of the first paragraph change "AASHTO's Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals" to "AASHTO "LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals"".
- Page 742 Article 1003.04(c). Under Gradation in the table change "(see Article 1003.02(c))" to "(see Article 1003.01(c))".
- Page 755 Article 1004.03(b). Revise the third sentence of the first paragraph to read "For Class A (seal or cover coat), and other binder courses, the coarse aggregate shall be Class C quality or better."

- Page 809 Article 1020.04(e). In the third line of the first paragraph change "ITP SCC-3" to "ITP SCC-4".
- Page 945 Article 1069.05. In the first sentence of the tenth paragraph change ""Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals"" to "AASHTO "LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals"".
- Page 961 Article 1070.04(b)(1). In the third sentence of the first paragraph change ""Standard Specifications of Structural Supports for Highway Signs, Luminaires and Traffic Signals" published by AASHTO" to "AASHTO "LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals"".
- Page 989 Article 1077.01. In the second sentence of the first paragraph change "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, as published by AASHTO" to "AASHTO "LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals"".
- Page 1121 Article 1103.13(a). In the first line of the first paragraph change "Bridge Deck Approach Slabs." to "Bridge Deck and Approach Slabs.".

80364

HOT-MIX ASPHALT - DENSITY TESTING OF LONGITUDINAL JOINTS (BDE)

Effective: January 1, 2010

Revised: April 1, 2016

Description. This work shall consist of testing the density of longitudinal joints as part of the quality control/quality assurance (QC/QA) of hot-mix asphalt (HMA). Work shall be according to Section 1030 of the Standard Specifications except as follows.

Quality Control/Quality Assurance (QC/QA). Delete the second and third sentence of the third paragraph of Article 1030.05(d)(3) of the Standard Specifications.

Add the following paragraphs to the end of Article 1030.05(d)(3) of the Standard Specifications:

“Longitudinal joint density testing shall be performed at each random density test location. Longitudinal joint testing shall be located at a distance equal to the lift thickness or a minimum of 4 in. (100 mm), from each pavement edge. (i.e. for a 5 in. (125 mm) lift the near edge of the density gauge or core barrel shall be within 5 in. (125 mm) from the edge of pavement.) Longitudinal joint density testing shall be performed using either a correlated nuclear gauge or cores.

- a. Confined Edge. Each confined edge density shall be represented by a one-minute nuclear density reading or a core density and shall be included in the average of density readings or core densities taken across the mat which represents the Individual Test.
- b. Unconfined Edge. Each unconfined edge joint density shall be represented by an average of three one-minute density readings or a single core density at the given density test location and shall meet the density requirements specified herein. The three one-minute readings shall be spaced 10 ft (3 m) apart longitudinally along the unconfined pavement edge and centered at the random density test location.”

Revise the Density Control Limits table in Article 1030.05(d)(4) of the Standard Specifications to read:

“Mixture Composition	Parameter	Individual Test (includes confined edges)	Unconfined Edge Joint Density Minimum
IL-4.75	Ndesign = 50	93.0 – 97.4% ^{1/}	91.0%
IL-9.5	Ndesign = 90	92.0 – 96.0%	90.0%
IL-9.5, IL-9.5L	Ndesign < 90	92.5 – 97.4%	90.0%
IL-19.0	Ndesign = 90	93.0 – 96.0%	90.0%
IL-19.0, IL-19.0L	Ndesign < 90	93.0 ^{2/} – 97.4%	90.0%
SMA	Ndesign = 50 & 80	93.5 – 97.4%	91.0%”

80246

LIGHT POLES (BDE)

Effective: July 1, 2016

Revise the second paragraph of Article 1069.01 of the Standard Specifications to read:

“The detailed design and fabrication of the pole shaft, arms, tenons, and attachments shall be according to AASHTO “LRFD Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals” current at the time the project is advertised. Light poles shall be designed for ADT > 10,000 and Risk Category Typical. If Fatigue design is required, light poles shall be designed for Importance Category I.”

Revise the fifth paragraph of Article 1069.01(a) of the Standard Specifications to read:

“Deflection of the pole top as caused by the combined effect of deadload referenced above and wind speed prescribed by AASHTO shall be as required by AASHTO. Pole deflection and loading compliance, certified by the manufacturer, shall be noted on the pole submittal.”

80367

MAST ARM ASSEMBLY AND POLE (BDE)

Effective: July 1, 2016

Revise Article 1077.03(a)(1) of the Standard Specifications to read:

“(1) Loading. The mast arm assembly and pole, and combination mast arm assembly and pole shall be designed for the loading shown on the Highway Standards or elsewhere on the plans, whichever is greater. The design shall be according to AASHTO “LRFD Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals” 2015 Edition. However, the arm-to-pole connection for tapered signal and luminaire arms shall be according to the “fillet welded, ring stiffened box connection” detail as shown in Figure C5.6.7-2. The mast arm and pole shall be designed assuming the ADT > 10,000, Risk Category Typical, and Fatigue Category I Natural Wind Gust only.”

80369

MECHANICAL SIDE TIE BAR INSERTER (BDE)

Effective: August 1, 2014

Revised: April 1, 2016

Add the following to Article 420.03 of the Standard Specifications:

"(k) Mechanical Side Tie Bar Inserters1103.18"

Revise Article 420.05(b) of the Standard Specifications to read:

"(b) Longitudinal Construction Joint. The tie bars shall be installed using one of the following methods.

- (1) Preformed or Drilled Holes. The tie bars shall be installed with a nonshrink grout or chemical adhesive providing a minimum pull-out strength as follows. The nonshrink grout and/or chemical adhesive shall be on the Department's qualified product list.

Bar Size	Minimum Pull-Out Strength
No. 6 (No. 19)	11,000 lb (49 kN)
No. 8 (No. 25)	19,750 lb (88 kN)

Holes shall be blown clean and dry prior to placing the grout or adhesive. If compressed air is used, the pneumatic tool lubricator shall be bypassed and a filter installed on the discharge valve to keep water and oil out of the lines. The installation shall be with methods and tools conforming to the grout or adhesive manufacturer's recommendations.

The Contractor shall load test five percent of the first 500 tie bars installed. No further installation will be allowed until the initial five percent testing has been completed and approval to continue installation has been given by the Engineer. Testing will be required for 0.5 percent of the bars installed after the initial 500. For each bar that fails to pass the minimum requirements, two more bars selected by the Engineer shall be tested. Each bar that fails to meet the minimum load requirement shall be reinstalled and retested. The equipment and method used for testing shall meet the requirements of ASTM E 488. All tests shall be performed within 72 hours of installation. The tie bars shall be installed and approved before concrete is placed in the adjacent lane."

- (2) Inserted. The tie bars shall be installed with the use of a mechanical side tie bar inserter. The inserter shall insert the tie bars with vibration while still within the extrusion process, after the concrete has been struck off and consolidated without deformation of the slab. The inserter shall remain stationary relative to the pavement when inserting tie bars, while the formless paver continues to move in the direction of paving.

A void greater than 1/8 in. (3 mm) at any location around the tie bar shall require immediate adjustment of the paving operation. A void greater than 1/2 in. (13 mm) shall be repaired with a nonshrink grout or chemical adhesive after the concrete has hardened. If at the end of the day of paving more than 20 percent of the tie bars show a void larger than 1/8 in. (3 mm) at any point around the bar, the use of the side tie bar inserter shall be discontinued.

(3) Formed in Place. The tie bar shall be formed in place as shown on the plans.

The sealant reservoir shall be formed either by sawing after the concrete has set according to Article 420.05(a) or by hand tools when the concrete is in a plastic state."

Add the following to Section 1103 of the Standard Specifications:

"1103.18 Mechanical Side Bar Inserters. The mechanical side tie bar inserter shall be self-contained and supported on the formless paver with the ability to move independently from the formless paver. The insertion apparatus shall vibrate within a frequency of 2000 to 6000 vpm. A vibrating reed tachometer, hand type, shall be provided according to Article 1103.12."

80342

PAVEMENT MARKING REMOVAL (BDE)

Effective: July 1, 2016

Revise Article 783.02 of the Standard Specifications to read:

“783.02 Equipment. Equipment shall be according to the following.

Item	Article/Section
(a) Grinders (Note 1)	
(b) Water Blaster with Vacuum Recovery	1101.12

Note 1. Grinding equipment shall be approved by the Engineer.”

Revise the first paragraph of Article 783.03 of the Standard Specifications to read:

“783.03 Removal of Conflicting Markings. Existing pavement markings that conflict with revised traffic patterns shall be removed. If darkness or inclement weather prohibits the removal operations, such operations shall be resumed the next morning or when weather permits. In the event of removal equipment failure, such equipment shall be repaired, replaced, or leased so removal operations can be resumed within 24 hours.”

Revise the first and second sentences of the first paragraph of Article 783.03(a) of the Standard Specifications to read:

“The existing pavement markings shall be removed by the method specified and in a manner that does not materially damage the surface or texture of the pavement or surfacing. Small particles of tightly adhering existing markings may remain in place, if in the opinion of the Engineer, complete removal of the small particles will result in pavement surface damage.”

Revise the first paragraph of Article 783.04 of the Standard Specifications to read:

“783.04 Cleaning. The roadway surface shall be cleaned of debris or any other deleterious material by the use of compressed air or water blast.”

Revise the first paragraph of Article 783.06 of the Standard Specifications to read:

“783.06 Basis of Payment. This work will be paid for at the contract unit price per each for RAISED REFLECTIVE PAVEMENT MARKER REMOVAL, or at the contract unit price per square foot (square meter) for PAVEMENT MARKING REMOVAL – GRINDING and/or PAVEMENT MARKING REMOVAL – WATER BLASTING.”

Delete Article 1101.13 from the Standard Specifications.

80371

PROGRESS PAYMENTS (BDE)

Effective: November 2, 2013

Revise Article 109.07(a) of the Standard Specifications to read:

- “(a) Progress Payments. At least once each month, the Engineer will make a written estimate of the quantity of work performed in accordance with the contract, and the value thereof at the contract unit prices. The amount of the estimate approved as due for payment will be vouchered by the Department and presented to the State Comptroller for payment. No amount less than \$1000.00 will be approved for payment other than the final payment.

Progress payments may be reduced by liens filed pursuant to Section 23(c) of the Mechanics' Lien Act, 770 ILCS 60/23(c).

If a Contractor or subcontractor has defaulted on a loan issued under the Department's Disadvantaged Business Revolving Loan Program (20 ILCS 2705/2705-610), progress payments may be reduced pursuant to the terms of that loan agreement. In such cases, the amount of the estimate related to the work performed by the Contractor or subcontractor, in default of the loan agreement, will be offset, in whole or in part, and vouchered by the Department to the Working Capital Revolving Fund or designated escrow account. Payment for the work shall be considered as issued and received by the Contractor or subcontractor on the date of the offset voucher. Further, the amount of the offset voucher shall be a credit against the Department's obligation to pay the Contractor, the Contractor's obligation to pay the subcontractor, and the Contractor's or subcontractor's total loan indebtedness to the Department. The offset shall continue until such time as the entire loan indebtedness is satisfied. The Department will notify the Contractor and Fund Control Agent in a timely manner of such offset. The Contractor or subcontractor shall not be entitled to additional payment in consideration of the offset.

The failure to perform any requirement, obligation, or term of the contract by the Contractor shall be reason for withholding any progress payments until the Department determines that compliance has been achieved.”

80328

The Contractor will be advised when the Department has received approval of the insurance from the railroad(s). Before any work begins on railroad right-of-way, the Contractor shall submit to the Engineer evidence that the required insurance has been approved by the railroad(s). The Contractor shall also provide the Engineer with the expiration date of each required policy.

Basis of Payment. Providing Railroad Protective Liability and Property Damage Liability Insurance will be paid for at the contract unit price per Lump Sum for RAILROAD PROTECTIVE LIABILITY INSURANCE.

80157

RECLAIMED ASPHALT PAVEMENT AND RECLAIMED ASPHALT SHINGLES (BDE)

Effective: November 1, 2012

Revise: April 1, 2016

Revise Section 1031 of the Standard Specifications to read:

"SECTION 1031. RECLAIMED ASPHALT PAVEMENT AND RECLAIMED ASPHALT SHINGLES

1031.01 Description. Reclaimed asphalt pavement and reclaimed asphalt shingles shall be according to the following.

- (a) Reclaimed Asphalt Pavement (RAP). RAP is the material produced by cold milling or crushing an existing hot-mix asphalt (HMA) pavement. The Contractor shall supply written documentation that the RAP originated from routes or airfields under federal, state, or local agency jurisdiction.
- (b) Reclaimed Asphalt Shingles (RAS). Reclaimed asphalt shingles (RAS). RAS is from the processing and grinding of preconsumer or post-consumer shingles. RAS shall be a clean and uniform material with a maximum of 0.5 percent unacceptable material, as defined in Bureau of Materials and Physical Research Policy Memorandum, "Reclaimed Asphalt Shingle (RAS) Sources", by weight of RAS. All RAS used shall come from a Bureau of Materials and Physical Research approved processing facility where it shall be ground and processed to 100 percent passing the 3/8 in. (9.5 mm) sieve and 93 percent passing the #4 (4.75 mm) sieve based on a dry shake gradation. RAS shall be uniform in gradation and asphalt binder content and shall meet the testing requirements specified herein. In addition, RAS shall meet the following Type 1 or Type 2 requirements.
 - (1) Type 1. Type 1 RAS shall be processed, preconsumer asphalt shingles salvaged from the manufacture of residential asphalt roofing shingles.
 - (2) Type 2. Type 2 RAS shall be processed post-consumer shingles only, salvaged from residential, or four unit or less dwellings not subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP).

1031.02 Stockpiles. RAP and RAS stockpiles shall be according to the following.

- (a) RAP Stockpiles. The Contractor shall construct individual, sealed RAP stockpiles meeting one of the following definitions. No additional RAP shall be added to the pile after the pile has been sealed. Stockpiles shall be sufficiently separated to prevent intermingling at the base. Stockpiles shall be identified by signs indicating the type as listed below (i.e. "Homogeneous Surface").

Prior to milling, the Contractor shall request the District provide documentation on the quality of the RAP to clarify the appropriate stockpile.

- (1) Fractionated RAP (FRAP). FRAP shall consist of RAP from Class I, HMA (High and Low ESAL) mixtures. The coarse aggregate in FRAP shall be crushed aggregate and may represent more than one aggregate type and/or quality, but shall be at least C quality. All FRAP shall be fractionated prior to testing by screening into a minimum of two size fractions with the separation occurring on or between the #4 (4.75 mm) and 1/2 in. (12.5 mm) sieves. Agglomerations shall be minimized such that 100 percent of the RAP shall pass the sieve size specified below for the mix into which the FRAP will be incorporated.

Mixture FRAP will be used in:	Sieve Size that 100 % of FRAP Shall Pass
IL-19.0	1 1/2 in. (40 mm)
IL-9.5	3/4 in. (20 mm)
IL-4.75	1/2 in. (13 mm)

- (2) Homogeneous. Homogeneous RAP stockpiles shall consist of RAP from Class I, HMA (High and Low ESAL) mixtures and represent: 1) the same aggregate quality, but shall be at least C quality; 2) the same type of crushed aggregate (either crushed natural aggregate, ACBF slag, or steel slag); 3) similar gradation; and 4) similar asphalt binder content. If approved by the Engineer, combined single pass surface/binder millings may be considered "homogeneous" with a quality rating dictated by the lowest coarse aggregate quality present in the mixture.
- (3) Conglomerate. Conglomerate RAP stockpiles shall consist of RAP from Class I, HMA (High and Low ESAL) mixtures. The coarse aggregate in this RAP shall be crushed aggregate and may represent more than one aggregate type and/or quality, but shall be at least C quality. This RAP may have an inconsistent gradation and/or asphalt binder content prior to processing. All conglomerate RAP shall be processed prior to testing by crushing to where all RAP shall pass the 5/8 in. (16 mm) or smaller screen. Conglomerate RAP stockpiles shall not contain steel slag.
- (4) Non-Quality. RAP stockpiles that do not meet the requirements of the stockpile categories listed above shall be classified as "Non-Quality".

RAP/FRAP containing contaminants, such as earth, brick, sand, concrete, sheet asphalt, bituminous surface treatment (i.e. chip seal), pavement fabric, joint sealants, etc., will be unacceptable unless the contaminants are removed to the satisfaction of the Engineer. Sheet asphalt shall be stockpiled separately.

- (b) RAS Stockpiles. Type 1 and Type 2 RAS shall be stockpiled separately and shall not be intermingled. Each stockpile shall be signed indicating what type of RAS is present.

Unless otherwise specified by the Engineer, mechanically blending manufactured sand (FM 20 or FM 22) up to an equal weight of RAS with the processed RAS will be permitted to improve workability. The sand shall be "B Quality" or better from an approved Aggregate Gradation Control System source. The sand shall be accounted for in the mix design and during HMA production.

Records identifying the shingle processing facility supplying the RAS, RAS type, and lot number shall be maintained by project contract number and kept for a minimum of three years.

1031.03 Testing. RAP/FRAP and RAS testing shall be according to the following.

(a) RAP/FRAP Testing. When used in HMA, the RAP/FRAP shall be sampled and tested either during or after stockpiling.

(1) During Stockpiling. For testing during stockpiling, washed extraction samples shall be run at the minimum frequency of one sample per 500 tons (450 metric tons) for the first 2000 tons (1800 metric tons) and one sample per 2000 tons (1800 metric tons) thereafter. A minimum of five tests shall be required for stockpiles less than 4000 tons (3600 metric tons).

(2) After Stockpiling. For testing after stockpiling, the Contractor shall submit a plan for approval to the District proposing a satisfactory method of sampling and testing the RAP/FRAP pile either in-situ or by restockpiling. The sampling plan shall meet the minimum frequency required above and detail the procedure used to obtain representative samples throughout the pile for testing.

Each sample shall be split to obtain two equal samples of test sample size. One of the two test samples from the final split shall be labeled and stored for Department use. The Contractor shall extract the other test sample according to Department procedure. The Engineer reserves the right to test any sample (split or Department-taken) to verify Contractor test results.

(b) RAS Testing. RAS or RAS blended with manufactured sand shall be sampled and tested during stockpiling according to Bureau of Materials and Physical Research Policy Memorandum, "Reclaimed Asphalt Shingle (RAS) Source".

Samples shall be collected during stockpiling at the minimum frequency of one sample per 200 tons (180 metric tons) for the first 1000 tons (900 metric tons) and one sample per 250 tons (225 metric tons) thereafter. A minimum of five samples are required for stockpiles less than 1000 tons (900 metric tons). Once a ≤ 1000 ton (900 metric ton), five-sample/test stockpile has been established it shall be sealed. Additional incoming RAS or RAS blended with manufactured sand shall be stockpiled in a separate working pile as designated in the Quality Control plan and only added to the sealed stockpile when the test results of the working pile are complete and are found to meet the tolerances specified herein for the original sealed RAS stockpile.

Before testing, each sample shall be split to obtain two test samples. One of the two test samples from the final split shall be labeled and stored for Department use. The Contractor shall perform a washed extraction and test for unacceptable materials on the other test sample according to Department procedures. The Engineer reserves the right to test any sample (split or Department-taken) to verify Contractor test results.

If the sampling and testing was performed at the shingle processing facility in accordance with the QC Plan, the Contractor shall obtain and make available all of the test results from start of the initial stockpile.

1031.04 Evaluation of Tests. Evaluation of test results shall be according to the following.

- (a) Evaluation of RAP/FRAP Test Results. All of the extraction results shall be compiled and averaged for asphalt binder content and gradation, and when applicable G_{mm} . Individual extraction test results, when compared to the averages, will be accepted if within the tolerances listed below.

Parameter	FRAP/Homogeneous/ Conglomerate
1 in. (25 mm)	
1/2 in. (12.5 mm)	± 8 %
No. 4 (4.75 mm)	± 6 %
No. 8 (2.36 mm)	± 5 %
No. 16 (1.18 mm)	
No. 30 (600 μm)	± 5 %
No. 200 (75 μm)	± 2.0 %
Asphalt Binder	± 0.4 % ^{1/}
G_{mm}	± 0.03

1/ The tolerance for FRAP shall be ± 0.3 %.

If more than 20 percent of the individual sieves and/or asphalt binder content tests are out of the above tolerances, the RAP/FRAP shall not be used in HMA unless the RAP/FRAP representing the failing tests is removed from the stockpile. All test data and acceptance ranges shall be sent to the District for evaluation.

With the approval of the Engineer, the ignition oven may be substituted for extractions according to the ITP, "Calibration of the Ignition Oven for the Purpose of Characterizing Reclaimed Asphalt Pavement (RAP)".

- (b) Evaluation of RAS and RAS Blended with Manufactured Sand Test Results. All of the test results, with the exception of percent unacceptable materials, shall be compiled and averaged for asphalt binder content and gradation. Individual test results, when compared to the averages, will be accepted if within the tolerances listed below.

Parameter	RAS
No. 8 (2.36 mm)	± 5 %
No. 16 (1.18 mm)	± 5 %
No. 30 (600 µm)	± 4 %
No. 200 (75 µm)	± 2.0 %
Asphalt Binder Content	± 1.5 %

If more than 20 percent of the individual sieves and/or asphalt binder content tests are out of the above tolerances, or if the percent unacceptable material exceeds 0.5 percent by weight of material retained on the # 4 (4.75 mm) sieve, the RAS or RAS blend shall not be used in Department projects. All test data and acceptance ranges shall be sent to the District for evaluation.

1031.05 Quality Designation of Aggregate in RAP/FRAP.

(a) RAP. The aggregate quality of the RAP for homogeneous and conglomerate stockpiles shall be set by the lowest quality of coarse aggregate in the RAP stockpile and are designated as follows.

(1) RAP from Class I, Superpave/HMA (High ESAL), or (Low ESAL) IL-9.5L surface mixtures are designated as containing Class B quality coarse aggregate.

(2) RAP from Class I binder, Superpave/HMA (High ESAL) binder, or (Low ESAL) IL-19.0L binder mixtures are designated as containing Class C quality coarse aggregate.

(b) FRAP. If the Engineer has documentation of the quality of the FRAP aggregate, the Contractor shall use the assigned quality provided by the Engineer.

If the quality is not known, the quality shall be determined as follows. Coarse and fine FRAP stockpiles containing plus #4 (4.75 mm) sieve coarse aggregate shall have a maximum tonnage of 5000 tons (4500 metric tons). The Contractor shall obtain a representative sample witnessed by the Engineer. The sample shall be a minimum of 50 lb (25 kg). The sample shall be extracted according to Illinois Modified AASHTO T 164 by a consultant laboratory prequalified by the Department for the specified testing. The consultant laboratory shall submit the test results along with the recovered aggregate to the District Office. The cost for this testing shall be paid by the Contractor. The District will forward the sample to the Bureau of Materials and Physical Research Aggregate Lab for MicroDeval Testing, according to ITP 327. A maximum loss of 15.0 percent will be applied for all HMA applications.

1031.06 Use of RAP/FRAP and/or RAS in HMA. The use of RAP/FRAP and/or RAS shall be the Contractor's option when constructing HMA in all contracts.

(a) RAP/FRAP. The use of RAP/FRAP in HMA shall be as follows.

- (1) Coarse Aggregate Size. The coarse aggregate in all RAP shall be equal to or less than the nominal maximum size requirement for the HMA mixture to be produced.
 - (2) Steel Slag Stockpiles. Homogeneous RAP stockpiles containing steel slag will be approved for use in all HMA (High ESAL and Low ESAL) Surface and Binder Mixture applications.
 - (3) Use in HMA Surface Mixtures (High and Low ESAL). RAP/FRAP stockpiles for use in HMA surface mixtures (High and Low ESAL) shall be FRAP or homogeneous in which the coarse aggregate is Class B quality or better. RAP/FRAP from Conglomerate stockpiles shall be considered equivalent to limestone for frictional considerations. Known frictional contributions from plus #4 (4.75 mm) homogeneous RAP and FRAP stockpiles will be accounted for in meeting frictional requirements in the specified mixture.
 - (4) Use in HMA Binder Mixtures (High and Low ESAL), HMA Base Course, and HMA Base Course Widening. RAP/FRAP stockpiles for use in HMA binder mixtures (High and Low ESAL), HMA base course, and HMA base course widening shall be FRAP, homogeneous, or conglomerate, in which the coarse aggregate is Class C quality or better.
 - (5) Use in Shoulders and Subbase. RAP/FRAP stockpiles for use in HMA shoulders and stabilized subbase (HMA) shall be FRAP, homogeneous, or conglomerate.
 - (6) When the Contractor chooses the RAP option, the percentage of RAP shall not exceed the amounts indicated in Article 1031.06(c)(1) below for a given Ndesign.
- (b) RAS. RAS meeting Type 1 or Type 2 requirements will be permitted in all HMA applications as specified herein.
- (c) RAP/FRAP and/or RAS Usage Limits. Type 1 or Type 2 RAS may be used alone or in conjunction with RAP or FRAP in HMA mixtures up to a maximum of 5.0 percent by weight of the total mix.
- (1) RAP/RAS. When RAP is used alone or RAP is used in conjunction with RAS, the percentage of virgin asphalt binder replacement shall not exceed the amounts listed in the Max RAP/RAS ABR table listed below for the given Ndesign.

RAP/RAS Maximum Asphalt Binder Replacement (ABR) Percentage

HMA Mixtures <i>1, 2</i>	RAP/RAS Maximum ABR %		
	Binder/Leveling Binder	Surface	Polymer Modified
30	30	30	10

50	25	15	10
70	15	10	10
90	10	10	10

1/ For Low ESAL HMA shoulder and stabilized subbase, the RAP/RAS ABR shall not exceed 50 percent of the mixture.

2/ When RAP/RAS ABR exceeds 20 percent, the high and low virgin asphalt binder grades shall each be reduced by one grade (i.e. 25 percent ABR would require a virgin asphalt binder grade of PG 64-22 to be reduced to a PG 58-28). If warm mix asphalt (WMA) technology is utilized and production temperatures do not exceed 275 °F (135 °C), the high and low virgin asphalt binder grades shall each be reduced by one grade when RAP/RAS ABR exceeds 25 percent (i.e. 26 percent RAP/RAS ABR would require a virgin asphalt binder grade of PG 64-22 to be reduced to a PG 58-28).

(2) FRAP/RAS. When FRAP is used alone or FRAP is used in conjunction with RAS, the percentage of virgin asphalt binder replacement shall not exceed the amounts listed in the FRAP/RAS table listed below for the given Ndesign.

FRAP/RAS Maximum Asphalt Binder Replacement (ABR) Percentage

HMA Mixtures <i>1/, 2/</i>	FRAP/RAS Maximum ABR %		
	Ndesign	Binder/Leveling Binder	Surface
30	50	40	10
50	40	35	10
70	40	30	10
90	40	30	10

1/ For Low ESAL HMA shoulder and stabilized subbase, the FRAP/RAS ABR shall not exceed 50 percent of the mixture.

2/ When FRAP/RAS ABR exceeds 20 percent for all mixes, the high and low virgin asphalt binder grades shall each be reduced by one grade (i.e. 25 percent ABR would require a virgin asphalt binder grade of PG 64-22 to be reduced to a PG 58-28). If warm mix asphalt (WMA) technology is utilized and production temperatures do not exceed 275 °F (135 °C), the high and low virgin asphalt binder grades shall each be reduced by one grade when FRAP/RAS ABR exceeds 25 percent (i.e. 26 percent ABR would require a virgin asphalt binder grade of PG 64-22 to be reduced to a PG 58-28).

3/ For SMA the FRAP/RAS ABR shall not exceed 20 percent.

4/ For IL-4.75 mix the FRAP/RAS ABR shall not exceed 30 percent.

1031.07 HMA Mix Designs. At the Contractor's option, HMA mixtures may be constructed utilizing RAP/FRAP and/or RAS material meeting the detailed requirements specified herein.

- (a) RAP/FRAP and/or RAS. RAP/FRAP and/or RAS mix designs shall be submitted for verification. If additional RAP/FRAP and/or RAS stockpiles are tested and found that no more than 20 percent of the results, as defined under "Testing" herein, are outside of the control tolerances set for the original RAP/FRAP and/or RAS stockpile and HMA mix design, and meets all of the requirements herein, the additional RAP/FRAP and/or RAS stockpiles may be used in the original mix design at the percent previously verified.
- (b) RAS. Type 1 and Type 2 RAS are not interchangeable in a mix design. A RAS stone bulk specific gravity (Gsb) of 2.300 shall be used for mix design purposes.

1031.08 HMA Production. HMA production utilizing RAP/FRAP and/or RAS shall be as follows.

- (a) RAP/FRAP. The coarse aggregate in all RAP/FRAP used shall be equal to or less than the nominal maximum size requirement for the HMA mixture being produced.

To remove or reduce agglomerated material, a scalping screen, gator, crushing unit, or comparable sizing device approved by the Engineer shall be used in the RAP feed system to remove or reduce oversized material. If material passing the sizing device adversely affects the mix production or quality of the mix, the sizing device shall be set at a size specified by the Engineer.

If the RAP/FRAP control tolerances or QC/QA test results require corrective action, the Contractor shall cease production of the mixture containing RAP/FRAP and either switch to the virgin aggregate design or submit a new RAP/FRAP design.

- (b) RAS. RAS shall be incorporated into the HMA mixture either by a separate weight depletion system or by using the RAP weigh belt. Either feed system shall be interlocked with the aggregate feed or weigh system to maintain correct proportions for all rates of production and batch sizes. The portion of RAS shall be controlled accurately to within ± 0.5 percent of the amount of RAS utilized. When using the weight depletion system, flow indicators or sensing devices shall be provided and interlocked with the plant controls such that the mixture production is halted when RAS flow is interrupted.
- (c) RAP/FRAP and/or RAS. HMA plants utilizing RAP/FRAP and/or RAS shall be capable of automatically recording and printing the following information.

(1) Dryer Drum Plants.

- a. Date, month, year, and time to the nearest minute for each print.

- b. HMA mix number assigned by the Department.
- c. Accumulated weight of dry aggregate (combined or individual) in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton).
- d. Accumulated dry weight of RAP/FRAP/RAS in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton).
- e. Accumulated mineral filler in revolutions, tons (metric tons), etc. to the nearest 0.1 unit.
- f. Accumulated asphalt binder in gallons (liters), tons (metric tons), etc. to the nearest 0.1 unit.
- g. Residual asphalt binder in the RAP/FRAP material as a percent of the total mix to the nearest 0.1 percent.
- h. Aggregate and RAP/FRAP moisture compensators in percent as set on the control panel. (Required when accumulated or individual aggregate and RAP/FRAP are printed in wet condition.)

(2) Batch Plants.

- a. Date, month, year, and time to the nearest minute for each print.
- b. HMA mix number assigned by the Department.
- c. Individual virgin aggregate hot bin batch weights to the nearest pound (kilogram).
- d. Mineral filler weight to the nearest pound (kilogram).
- e. RAP/FRAP/RAS weight to the nearest pound (kilogram).
- f. Virgin asphalt binder weight to the nearest pound (kilogram).
- g. Residual asphalt binder in the RAP/FRAP/RAS material as a percent of the total mix to the nearest 0.1 percent.

The printouts shall be maintained in a file at the plant for a minimum of one year or as directed by the Engineer and shall be made available upon request. The printing system will be inspected by the Engineer prior to production and verified at the beginning of each construction season thereafter.

1031.09 RAP in Aggregate Surface Course and Aggregate Wedge Shoulders, Type B.
The use of RAP in aggregate surface course (temporary access entrances only) and aggregate wedge shoulders, Type B shall be as follows.

- (a) Stockpiles and Testing. RAP stockpiles may be any of those listed in Article 1031.02, except "Non-Quality" and "FRAP". The testing requirements of Article 1031.03 shall not apply. RAP used shall be according to the current Bureau of Materials and Physical Research Policy Memorandum, "Reclaimed Asphalt Pavement (RAP) for Aggregate Applications".
- (b) Gradation. One hundred percent of the RAP material shall pass the 1 1/2 in. (37.5 mm) sieve. The RAP material shall be reasonably well graded from coarse to fine. RAP material that is gap-graded or single sized will not be accepted."

80306

STEEL COST ADJUSTMENT (BDE) (RETURN FORM WITH BID)

Effective: April 2, 2004

Revised: July 1, 2015

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 on the attached form whether or not this special provision will be part of the contract and submit the completed form with his/her bid. Failure to submit the form or failure to indicate contract number, company name, and sign and date the form shall make this contract exempt of steel cost adjustments for all items of steel. 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, mesh 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
Mesh 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)

Return With Bid

**ILLINOIS DEPARTMENT
OF TRANSPORTATION**

**OPTION FOR
STEEL COST ADJUSTMENT**

The bidder shall submit this completed form with his/her bid. Failure to submit the form or properly complete contract number, company name, and sign and date the form shall make this contract exempt of steel cost adjustments for all items of steel. Failure to indicate "Yes" for any item of work will make that item of steel exempt from steel cost adjustment. After award, this form, when submitted shall become part of the contract.

Contract No.: _____

Company Name: _____

Contractor's Option:

Is your company opting to include this special provision as part of the contract plans for the following items of work?

- | | | |
|--|-----|--------------------------|
| Metal Piling | Yes | <input type="checkbox"/> |
| Structural Steel | Yes | <input type="checkbox"/> |
| Reinforcing Steel | Yes | <input type="checkbox"/> |
| Dowel Bars, Tie Bars and Mesh Reinforcement | Yes | <input type="checkbox"/> |
| Guardrail | Yes | <input type="checkbox"/> |
| Steel Traffic Signal and Light Poles, Towers and Mast Arms | Yes | <input type="checkbox"/> |
| Metal Railings (excluding wire fence) | Yes | <input type="checkbox"/> |
| Frames and Grates | Yes | <input type="checkbox"/> |

Signature: _____ **Date:** _____

80127

STEEL SLAG IN TRENCH BACKFILL (BDE)

Effective: January 1, 2016

Revise the second sentence of Article 1003.01(a)(8) of the Standard Specifications to read:

“Crushed steel slag shall be the nonmetallic product which is developed in a molten condition simultaneously with steel in an open hearth, basic oxygen, or electric arc furnace.”

Revise Article 1003.04(a) of the Standard Specifications to read:

“(a) Description. The fine aggregate shall consist of sand, stone sand, chats, wet bottom boiler slag, slag sand, or granulated slag sand. Crushed concrete sand, construction and demolition debris sand, and steel slag sand produced from an electric arc furnace may be used in lieu of the above for trench backfill.”

80362

TRAINING SPECIAL PROVISIONS (BDE) 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 4. In the event the contractor subcontracts a portion of the contract work, he 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 insure 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 employed by him 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 that he 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 has successfully completed a training course leading to journeyman status or in which he 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, Manpower Administration, Bureau of Apprenticeship and Training 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 will provide for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision.

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.

20338

WARM MIX ASPHALT (BDE)

Effective: January 1, 2012

Revised: April 1, 2016

Description. This work shall consist of designing, producing and constructing Warm Mix Asphalt (WMA) in lieu of Hot Mix Asphalt (HMA) at the Contractor's option. Work shall be according to Sections 406, 407, 408, 1030, and 1102 of the Standard Specifications, except as modified herein. In addition, any references to HMA in the Standard Specifications, or the special provisions shall be construed to include WMA.

WMA is an asphalt mixture which can be produced at temperatures lower than allowed for HMA utilizing approved WMA technologies. WMA technologies are defined as the use of additives or processes which allow a reduction in the temperatures at which HMA mixes are produced and placed. WMA is produced by the use of additives, a water foaming process, or combination of both. Additives include minerals, chemicals or organics incorporated into the asphalt binder stream in a dedicated delivery system. The process of foaming injects water into the asphalt binder stream, just prior to incorporation of the asphalt binder with the aggregate.

Approved WMA technologies may also be used in HMA provided all the requirements specified herein, with the exception of temperature, are met. However, asphalt mixtures produced at temperatures in excess of 275 °F (135 °C) will not be considered WMA when determining the grade reduction of the virgin asphalt binder grade.

Equipment.

Revise the first paragraph of Article 1102.01 of the Standard Specifications to read:

"1102.01 Hot-Mix Asphalt Plant. The hot-mix asphalt (HMA) plant shall be the batch-type, continuous-type, or dryer drum plant. The plants shall be evaluated for prequalification rating and approval to produce HMA according to the current Bureau of Materials and Physical Research Policy Memorandum, "Approval of Hot-Mix Asphalt Plants and Equipment". Once approved, the Contractor shall notify the Bureau of Materials and Physical Research to obtain approval of all plant modifications. The plants shall not be used to produce mixtures concurrently for more than one project or for private work unless permission is granted in writing by the Engineer. The plant units shall be so designed, coordinated and operated that they will function properly and produce HMA having uniform temperatures and compositions within the tolerances specified. The plant units shall meet the following requirements."

Add the following to Article 1102.01(a) of the Standard Specifications.

"(11) Equipment for Warm Mix Technologies.

- a. Foaming. Metering equipment for foamed asphalt shall have an accuracy of ± 2 percent of the actual water metered. The foaming control system shall be electronically interfaced with the asphalt binder meter.

- b. Additives. Additives shall be introduced into the plant according to the supplier's recommendations and shall be approved by the Engineer. The system for introducing the WMA additive shall be interlocked with the aggregate feed or weigh system to maintain correct proportions for all rates of production and batch sizes."

Mix Design Verification.

Add the following to Article 1030.04 of the Standard Specifications.

"(e) Warm Mix Technologies.

- (1) Foaming. WMA mix design verification will not be required when foaming technology is used alone (without WMA additives). However, the foaming technology shall only be used on HMA designs previously approved by the Department.
- (2) Additives. WMA mix designs utilizing additives shall be submitted to the Engineer for mix design verification."

Construction Requirements.

Revise the second paragraph of Article 406.06(b)(1) of the Standard Specifications to read:

"The HMA shall be delivered at a temperature of 250 to 350 °F (120 to 175 °C).
WMA shall be delivered at a minimum temperature of 215 °F (102 °C)."

Basis of Payment.

This work will be paid at the contract unit price bid for the HMA pay items involved. Anti-strip will not be paid for separately, but shall be considered as included in the cost of the work.

80288

WEEKLY DBE TRUCKING REPORTS (BDE)

Effective: June 2, 2012

Revised: April 2, 2015

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 Monday through Sunday 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

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

- I. General
- II. Nondiscrimination
- III. Nonsegregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Compliance with Governmentwide Suspension and Debarment Requirements
- XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (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).

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.

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). 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 bid proposal or request for proposal 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).

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.

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. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 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 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, 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 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, 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 230, 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 (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 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 35 and 29 CFR 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.

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, 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 who 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.

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, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure 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. 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, 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, 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 there under. 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, 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 and 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. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor 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 contracting agency deems appropriate.

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 \$10,000 or more.

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, 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). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

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

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, Employment Standards Administration, 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 Wage and Hour Administrator for determination. The Wage and Hour 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

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

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 at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor 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 §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, 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 Regulations, 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 section 1001 of title 18 and section 231 of title 31 of the United States Code.

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

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. 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.

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.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor 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

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.

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 of \$10 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.

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.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (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.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

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" 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:

(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.

2. 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. 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.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

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 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.

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 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).

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 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 1, 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

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.

2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

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.

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.

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.

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.

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 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee 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 grantee or subgrantee 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.

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.

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. 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 Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

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. 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) 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;

(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; 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.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. 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)

a. By signing and submitting this proposal, the prospective lower tier 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.

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 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 grantee or subgrantee 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 grantee or subgrantee 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.

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.

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 Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

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.

* * * * *

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 is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 (49 CFR 20).

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.

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.

**MINIMUM WAGES FOR FEDERAL AND FEDERALLY
ASSISTED CONSTRUCTION CONTRACTS**

This project is funded, in part, with Federal-aid funds and, as such, is subject to the provisions of the Davis-Bacon Act of March 3, 1931, as amended (46 Sta. 1494, as amended, 40 U.S.C. 276a) and of other Federal statutes referred to in a 29 CFR Part 1, Appendix A, as well as such additional statutes as may from time to time be enacted containing provisions for the payment of wages determined to be prevailing by the Secretary of Labor in accordance with the Davis-Bacon Act and pursuant to the provisions of 29 CFR Part 1. The prevailing rates and fringe benefits shown in the General Wage Determination Decisions issued by the U.S. Department of Labor shall, in accordance with the provisions of the foregoing statutes, constitute the minimum wages payable on Federal and federally assisted construction projects to laborers and mechanics of the specified classes engaged on contract work of the character and in the localities described therein.

General Wage Determination Decisions, modifications and supersedes decisions thereto are to be used in accordance with the provisions of 29 CFR Parts 1 and 5. Accordingly, the applicable decision, together with any modifications issued, must be made a part of every contract for performance of the described work within the geographic area indicated as required by an applicable DBRA Federal prevailing wage law and 29 CFR Part 5. The wage rates and fringe benefits contained in the General Wage Determination Decision shall be the minimum paid by contractors and subcontractors to laborers and mechanics.